L H Moon
& Son
Bookbinders

NATIONAL HERBARIUM
OF
VICTORIA
26 MAY 1981
LIBRARY

complete.

THE ORCHADIAN

August, 1963. Number 1.

Published by the Australasian Native Orchid Society

Patron: Sir John Hall Best.
Vice-Presidents: Eric Gordon.
J.H. Scott.
Hon. Secretary: W.T. Upton.
Ass. Hon. Sec: S. Clemesha.

President: W.H. Murdoch.
Recordings: R. Curtis.
Gazette: R. Kerr.
Orchadian: M.J. Corrigan.
Treasurer: J. Soiland.

Price: 1/3.

EDITORIAL.

As editor of THE ORCHADIAN, the first publication of the Australasian Native Orchid Society, I feel that we should begin by stating the objectives of the Society. These objectives were included in the provisional constitution, read to some 90 members present at the inaugural meeting of the Society in Sydney on the 6th July, 1963.

OBJECTS.

1. To promote the culture and propagation of the native orchids of Australasia;
2. To assist in the preservation of the native orchids of Australasia in their native habitat and to discourage the wanton destruction of same;
3. To promote the scientific and cultural knowledge of the native orchids of Australasia;
4. To publish, edit and review literature and all writings, that are approved by the Society, appertaining to the recordings, propagating, culture and science of the native orchids of Australasia;
5. To print and publish pamphlets and periodicals that the Society may consider desirable for the promotion and furtherance of any of its objects;
6. To establish and maintain standards for the competition and award judging of the native orchids of Australasia;
7. To establish and maintain awards for the native orchids of Australasia, with the co-operation of the appropriate authorities;
8. To engage in any activity that would further the wellbeing and increase the knowledge of the native orchids of Australasia;
9. To extend the membership of the Society by creating a public interest in the Societies activities and proceedings.

The Editor wishes to thank all who have contributed to the inaugural issue. Whilst we have some material on hand for the next issue, we will welcome additional copy for possible inclusion in subsequent issues. The Editor would like to hear from all states in this regard. Receipt of material will not, of course, mean its automatic inclusion in THE ORCHADIAN, such decisions resting with the Editorial Committee.

Our Society has been most fortunate in having Sir John Hall Best accept the position of Patron of the Society. Sir John is very prominent in the orchid world and is presently the President of the AUSTRALIAN ORCHID COUNCIL.

INAUGURAL, SYDNEY BRANCH MEETING, OCTOBER 11th at 8 p.m.

The Provisional Committee has booked the Esme Hackett Hall, William Henry Street, Ultimo. All members should endeavour to attend this meeting which has been called to form the Sydney Branch, with an election of committee. The meeting will begin at 8 p.m. and if time allows, Eric Gordon will show some of his excellent colour slides.

The Editor would like to hear from members in all states regarding their interests and activities. All constructive criticism appertaining to THE ORCHADIAN will be very much appreciated.

ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
1[illegible] OCT 1966

A Guide to Branch Organisation.

Interest in our native orchids has always been widespread - but never united. Our conservationists, growers and bush lovers total a mighty force - which has been without an authoritative and effective voice. The Society was formed to change this, its strength depends on the interest you personally project into the organisation.

The quality and frequency of our publications and more important, the effectiveness of our objectives is dependant upon this strength, both financially and numerically. Every member should make it his job to recruit new members whenever possible. To assist you in your task we have included a complete list of members for your perusal. Is there anyone you know who is not on the list? Contact them at once and see if they are interested in membership.

A committee member, Stephen Clemesha is co-ordinating the formation of groups and he will be writing to some of you suggesting such action. Why not get a Branch under way with a meeting in your home?

There are many interesting activities for Branches to tackle. Slide nights, discussions based on THE ORCHADIAN, epiphyte or terrestrial culture in your area and conservation items are logical themes. A valuable activity would be to organise a lecture night for a conservation society, orchid society or Parents and Citizens Associations. Members could take along plants to supplement the lecture.

Your Branch should elect officers at the first meeting. A small one might operate with only a President and Secretary - Treasurer, however, larger Branches may need a Vice-President and possibly other specialised officers.

Little finance is required to run meetings. A silver coin collection at each meeting should suffice for petty cash expenses. The Sydney Branch will finance itself in this way.

Your annual subscription is of course, alloted to pay for at least six issues of THE ORCHADIAN each year and to provide establishment expenses for "The Australasian Native Orchid Gazette". You will agree that there is real value in this first issue of THE ORCHADIAN, whilst the GAZETTE will be a journal of world standing.

SLIDE COLLECTION.

Eric Gordon has consented to take charge of this important phase of our activities and he will be very glad to hear from any member prepared to contribute to our collection. Members may care to loan their slides to him for copying. An expert macro photographer with several hundreds of pounds worth of equipment he will take every care with them. They will be returned by registered mail with a minimum of delay. Don't forget to include your name and address with contributions, along with details of the specimens portrayed.

A member, J.P. Conquest of Mitcham, South Australia, has the honour of presenting the first slide and Eric Gordon has very generously donated some 200 from his personal collection of over 2,000. The Provisional Committee would like to thank both gentlemen for their gifts and the Editor hopes to report further donations in the next issue.

SHOW DATES.

Exhibition of Australian Flora; With flora from all states represented in floral art, potted plants, cut flowers and orchids. At Anthony Horderns, Sydney. September 10 - 14th. Open Tuesday - Friday 9 a.m. to 5 p.m. Friday night 6 p.m. to 9 p.m. Saturday morning 9 a.m. to 12 p.m. Contact a member of S.G.A.P. for further information.

National Wildflower Exhibition; To be held in the "Eurobodalla Hall", Newport, N.S.W. This exhibition will include a number of the Dendrobium kingianum group of natural & garden hybrids. Sydney members should try to see this fine display which will be open on September 20 - 21st.

LIBRARY.

Mr. J. Ezzy of Kirrawee, N.S.W. has very kindly presented "A Review of the Genus Dendrobium" by the Rev. H.M.R. Rupp, to the Societies library. Any works, whether copies or originals will be greatly appreciated.

BRIEF COMMENT ON THE ORCHIDS OF NEW ZEALAND.

E.D. Hatch.

There is a strong Australian element in the orchid flora of New Zealand. Of the 23 genera, 19 also occur in Australia, 2 more are derived from Australian genera and another, while not represented directly, does have distant subtribal Australian relatives. Earina (which appears to have originated in New Caledonia) is the only New Zealand genus without Australian affinities. Of the 89 species, 39 are common Australian plants.

Three main distributional trends stand out -

A The Indo-malayan north-to-south bifurcating movement, coming down by way of Java and New Guinea into Australia on the one hand, and on through New Caledonia and Lord Howe Island to New Zealand on the other. Eight New Zealand genera can be included in this group. Bulbophyllum, Corybas, Dendrobium, Gastrodia, Microtis, Sarcochilus, Spiranthes and Yoania. In the epiphytes this has resulted in unrelated species occurring on either side of the Tasman. In Corybas the long-sepalled Nematoceras group developed 6 local species in New Zealand but missed Australia entirely. So also in Gastrodia. Those species with the column compressed, (Gastrodia cunninghamii and Gastrodia minor in New Zealand and Gastrodia orobanchoides in the New Hebrides) are absent from Australia. Microtis and Spiranthes on the other hand, appear to have moved down only into Australia and been windborne subsequently to New Zealand and New Caledonia. The disjunct distribution of Yoania, which has no close relatives nearer than Japan, is most remarkable and can only be explained by assuming that other undiscovered species must occur in the intermediate areas. This is not improbable since the discovery of such plants is almost always accidental, (usually being sat on for lunch), the greater part of the life cycle being spent out of sight beneath the surface. The subtribe Cyrtopodiinae to which Yoania belongs, also includes the Australian Geodorum but the two are not closely related.

B The west-to-east, probably windborne movement, which brings Eastern Australian orchids to New Caledonia and New Zealand and thence to the Chathams and Polynesia, gave us the Australia - originating genera Acianthus, Adenochilus, Caladenia, Caleana, Calochilus, Lyperanthus, Orthoceras, Prasophyllum, Pterostylis, Thelymitra and Townsonia and in addition odd Australian species of Indo-malayan genera viz - Corybas aconitiflorus and C. unguiculatus, Gastrodia sesamoides, 3 species of Microtis and Spiranthes lancea. These same westerly winds which have added so much variety to the flora of New Zealand have probably prevented Earina from reaching Australia.

C Then there is the tendency to local differentiation which has produced Petalochilus from Caladenia, and Aporostylis from a combination of Caladenia and Chiloglottis. Corybas carsei a local derivative of C. unguiculatus; Pterostylis trullifolia related to Pt. obtusa; and varietal forms in Acianthus and Thelymitra are further examples of this. The grass-leaved Pterostylids do not occur in Australia or in New Caledonia, but have relatives in the mountains of New Guinea, which suggests a development similar to that of Corybas. Another problem is presented by the odd species of Australian genera (Caladenia, Calochilus, Pterostylis, Thelymitra etc.) which occur in New Guinea, Java and further north. Or have these genera originated in the north, moved southwards into Australia and there developed a secondary centre of evolution?

I would like to comment briefly on 3 New Zealand orchids with peculiar habits and no visible means of support. They all appear to be dependent on other plants, either as epi-parasites or by means of mycorrhiza, and two of them (Corybas cryptanthus and Yoania australis) are semi-subterranean saprophytes entirely devoid of chlorophyll.

(i) Corybas carsei as I said above, is related to C. unguiculatus and C. fordhamii, and looks rather like the latter. It has a small green leaf, and a largish bright red flower, and is of very limited occurrence, being confined to Hypolaena bogs in only 3 known localities, always in close association with the sedge Sporodanthus and the lycopod L. serpentinum. I understand that both the sedge and the lycopod occur in the Chatham Islands - I wonder does the Corybas too?

Brief Comment on the Orchids of New Zealand. (continued).

Fossil pollen from the Waikato bogs prove that this plant was once much more abundant than it is at present.

(ii) Corybas cryptanthus is a small almost leafless, creeping branching stem which exists and even flowers entirely out of sight beneath the surface layer of moss and debris. The flowers are terminal on the branches, as many as 6 buds being borne at a time (I have never actually seen more than one flower open at once and wonder if they open one after another, or if some don't develop any further once the leading flower is fertilised?). They are proportionately huge, translucent, red-flecked, with the tips of the long sepals just level with the tops of the mosses. The only part of the plant to be seen above the surface is the tall seeding peduncle, recognisable by its apparent leaflessness, the whitish red-flecked stem and the feeble-looking sun-starved appearance it assumes.

(iii) Yoania australis is confined, so far as is known, to two localities in the North Auckland peninsula, where it grows under mature taraire in situations which are relatively dark and damp. The taraire (Beilschmeidia tarairi - one of the laurels) have large leaves which fall freely, creating a characteristic deep humus layer, with sparse undergrowth beneath a dense canopy. In this humus layer grows the Yoania, another creeping, branching, tangled whitish rhizome up to 60 cm. long, carrying (during the summer season) as many as 7 erect stems each with 1-5 small, fairly regular flowers. Again - as I said above - there is no chlorophyll. The leaves are colourless sheathing bracts scattered at intervals up the reddish, pubescent stem, which is some 12 cm. high. The lower portion of the flower is of the same reddish-brown as the stem, while the upper portion is creamy-white. The plant though small is quite conspicuous, the dark stem and flower bases contrasting with the colourless bracts to give a banded effect which stands out against the dark background of the surface debris.

E.D. Hatch, 583 Tane Road, Laingholm Central. Auckland. S.W.4. N.Z.

RECORDS AND HERBARIUM.

The Societies Records Secretary, Bob Curtis is now compiling information on all finds. Please assist him by forwarding all your available information as soon as possible. Specimens for the Societies herbarium should also be sent to Bob, along with all relevant information. Below you will see a list of points to be included in your reports and Bob would welcome any suggestions for inclusion in the list. We have refrained from printing special forms and will leave it to members to provide the information on their own note paper.

Reports will be confidential and only passed on to the National Herbarium in the particular state. Any reference in the ORCHADIAN to more important and newsworthy finds will be reported, giving a very generalised locality. This step is felt necessary in protecting our native orchids from despoilation. Un-authorised persons may obtain access to published material and visit the site of a find with the intention of removing specimens without authority. Any member requiring additional information regarding the location of specimens in situ and being in possession of the necessary licenses from state authorities should feel quite free to contact Bob for additional information. Such requests will be dealt with on their merits.

CHECK LIST.
1. Genera & species. Or specimen if unknown.
2. Place of origin, i.e. Where found.
3. Finders name & address, date of find.
4. Host or type of soil, upon, or in which, plant growing.
5. Identifying authority.
6. Present location of specimen.
7. Whether growing or in herbarium.

Dendrobium cancroides Hunt, Nth. Qld. Nat. 14: No. 83, 30 (June 1947)

A very slender pendulous epiphyte, usually growing in small clumps with the pseudobulbs close together so that the rhizome is not readily discernable. Pseudobulbs (stems) 20-80 X 0.4 - 0.6 X 0.2 - 0.3 cm., scarcely swollen at the base, somewhat flattened, woody. Leaves up to 20, mostly confined to the apical half of the pseudobulb, 5 - 10 X 1.0 - 3.5 cm., thin in texture, ovate, oblong or abovate, acute or obtuse, the bases formed into long, tuberculate, persistent sheaths. Peduncles scarcely 3 mm. long. Pedicels, including ovary, 5 - 6 mm. long, tuberculate. Flowers facing each other in pairs and up to 6 pairs on a single pseudobulb, about 1.5 - 2.0 cm. long, usually not opening much at all, reddish-brown with a whitish or yellowish base; sepals and petals curved and twisted in an inconsistent manner, rather thick in texture, tuberculate. Dorsal sepal 10 - 15 X about 3 mm., narrow - triangular. Lateral sepals 12 - 20 X about 5 mm., tapering from the base to the apex but more or less falcate, joined at their bases to form, with the column foot, a blunt spur about 5 mm. long. Petals 10 - 15 X 1.0 - 1.5 mm., linear, acute. Labellum about 10 X 5 mm., curved throughout its length, trilobate, rather densely beset, on the inside, with cream cilia; disc with a single white ridge; lateral lobes well forward on the labellum, small, deltoid; mid-lobe much similar to the lateral ones. Column about 5 x 3 mm., yellow with a large irregular patch of red below the stigma; wings apical, denticulate, reaching almost as high as the anther; foot perpendicular to the column, about 5 mm. long, thin in texture. Stigma deep-set, suborbicular. Rostellum a subdeltoid, decurved platform projecting from the anterior floor of the clinandrium. Anther about 1 X 1 X 1 mm., green; rostrum directed downwards, about 0.5 X 1.0 mm., truncate. Pollinia 4, in pairs, narrow ovoid.
DISTRIBUTION:- From the Russell to the Daintree River, North Queensland as far as is known.
FLOWERING PERIOD:- Somewhat erratic, usually from December to May.
REMARKS:- This species has a very limited distribution and appears to be confined to the rain forests of mountain gorges of only a few localities, all so far recorded are within National Parks. The whole inflorescence develops very quickly and the flowers last a single day and being rather obscured by the leaves, the flowering can easily be overlooked.

A.W. Dockrill. Edge Hill, Cairns.

Pterostylis concinna R.Br. W. Upton & S. Clemesha.

The Trim Greenhood. The specific name (concinna) refers to the very neat appearance of this wide-spread plant. Pterostylis concinna has been found at least as far north as Blunder Creek near Brisbane and is common in many coastal areas as far south-west as Portland in Victoria. Surprisingly although common in Tasmania it is very rare in South Australia, in fact there is only one definite recording (Murray Bridge 1911). The specimens collected in the Bugle Ranges (1848 and 1850) have entire labellums and are therefore almost certainly Pterostylis nana R.Br. Although chiefly coastal, it extends to the Northern Grampians and Cravensville in Victoria and to Mudgee in N.S.W. It is commonly found in semi-shaded light sandy soil, often in association with members of the genus Melaleuca, but is sometimes seen in moist heavy soil. The flowering period is from May to October and like most Australian species of the genus it is deciduous, relying on its tubers to carry it through the summer. The white coloured tubers are usually less than three inches below the surface but considerable variation occurs. The fungus impregnated underground portion of the stem produces long slender unbranched stems at the end of which new tubers form. Little is known about the fungus relationship in Pterostylis but as few roots are produced it appears the plants benefit from it; each year the tuber dies and is replaced by up to four new ones. This way large colonies form.

continued on page 7.

A. PORTION OF PLANT .... TO ½ INDICATED SCALE

B. FLOWER FROM THE FRONT .... TO SCALE X 3

C. PAIR OF FLOWERS FROM THE SIDE .... TO SCALE X 2

D. FLOWER WITH SEPALS AND PETALS
ARTIFICIALLY OPENED .... TO SCALE X 3

E. COLUMN AND LABELLUM FROM THE SIDE ... TO SCALE X 3

F. LABELLUM, FLATTENED OUT ARTIFICIALLY..TO SCALE X 3

G. COLUMN FROM THE FRONT ....TO SCALE X 5

H. ANTHER FROM THE SIDE ....TO SCALE X 20

I. POLLINIA ....TO SCALE X 20

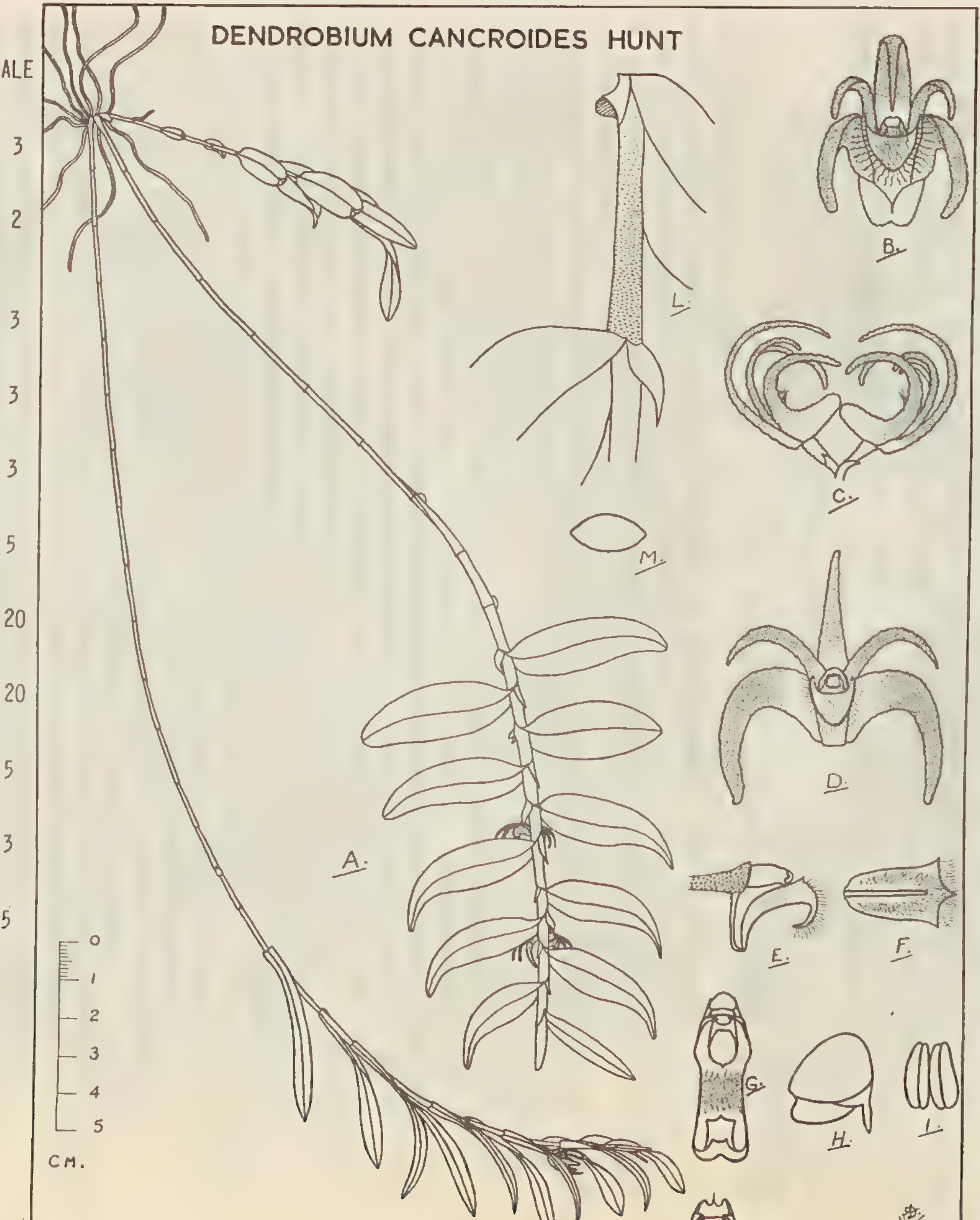
K. TOP OF COLUMN, ANTHER REMOVED ....TO SCALE X 5

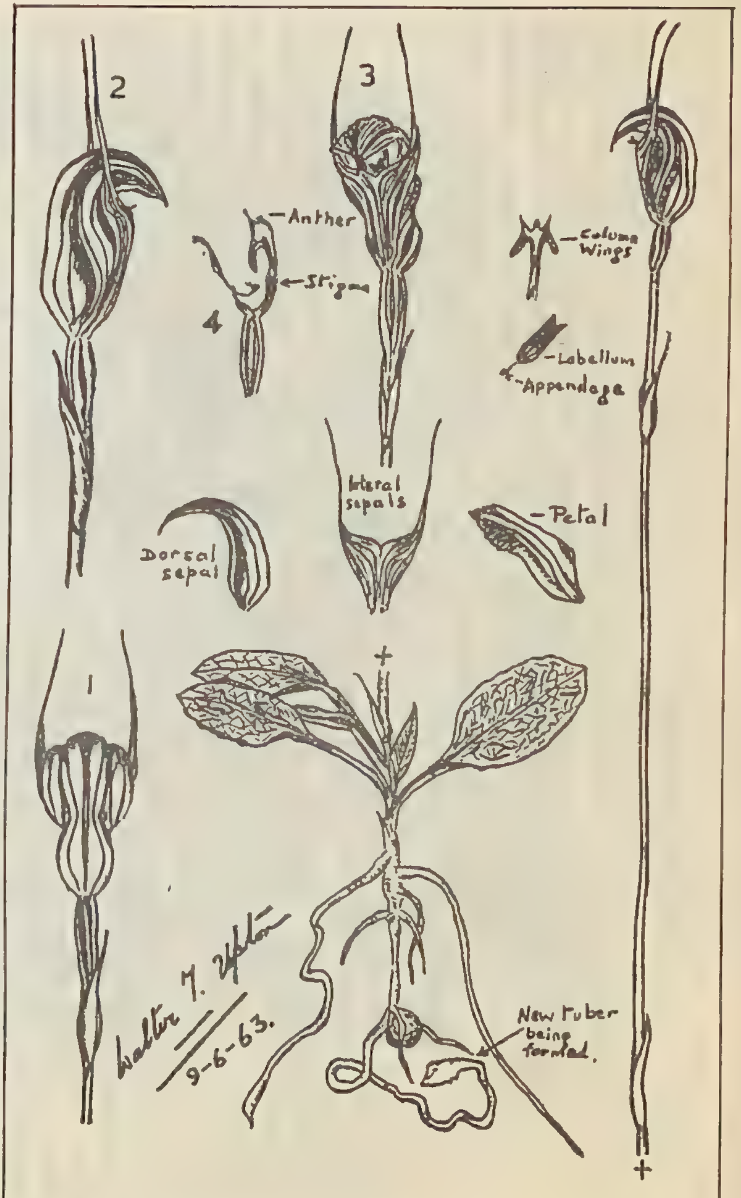
L. PORTION OF STEM AND LEAF BASES........TO SCALE X 3

M. CROSS SECTION OF STEM (PSEUDOBULB)....TO SCALE X 5

Page 6.
No. 1.

DENDROBIUM CANCROIDES HUNT





Walter M. Upton
9-6-63.

Pterostylis concinna R. Br.

Pterostylis concinna R.Br. (continued)

The normally single flower is small compared with most species of the genus and is often confused with Pt. nana and Pt. pedunculata but is easily distinguished from these by the bifid labellum. It has also been confused by name with the summer flowering Pt. coccinea Fitz. from the N.S.W. highlands.

The colour is very variable as in all members of the genus and in this species the galea is translucent white at the base and veined with green or reddish-brown at the anterior end. The lateral sepals are green with varying degrees of reddish-brown around the broad U shaped sinus with dark erect filiform points at the tip. The dark reddish-brown labellum has a bifid tip and a pale appendage and the column is pale green with dark reddish-brown wings.

Pollination is caused by a small insect entering the flower by way of the irritable labellum which springs up against the column, forcing the insect to pass between the wings and thus over the stigma and over the anthers where it picks up more pollen. If pollination is effected a seed capsule forms and if held to the light about three months later will show brown seed if ripe and ready to burst.

Pterostylis concinna was first described by Robert Brown in 1810 from plants collected in the Port Jackson area. An early record of its cultivation can be found in Paxton's Botanical Dictionary of 1868, suggesting a compost containing equal parts of sand, peat moss and loam; a mixture that is still found suitable. Any open well drained compost appear to be satisfactory as long as they are allowed to dry out between waterings. Pests such as slugs need to be watched for and it is advisable to re-pot annually as the tubers tend to work to the side of the pot and thus cause over-crowding. This species flowers and increases well in cultivation.

A number of suspected hybrids have been found including the following. Pt. toveyana Ewart and Sharpman, a rare Victorian and Tasmanian species which appears to be intermediate between Pt. alata Reichb.f. and Pt. concinna: intermediates between Pt. toveyana and Pt. concinna do occur and Pt. toveyana is almost always found in close association with the suspected parent species. The Rev. H.M.R. Rupp considered that Pt. ophioglossa R.Br. may have originated as a hybrid between Pt. truncata Fitz. and Pt. concinna: all three flower side by side in the South Maitland Coalfields during May. A few plants of a suspected hybrid between Pt. obtusa R.Br. and Pt. concinna have been found on the far South Coast of N.S.W.

The illustration is from specimens growing in the Sydney Sandstone area. Figures 1, 2, 3 and 4 are variously enlarged, the others are natural size.

W. Upton, 5 Woorarra Ave., Narrabeen Nth. N.S.W.
S. Clemesha, 3 Consett St., Concord West, N.S.W.

The Culture of Epiphytic Orchids.

W.H. Murdoch.

The basic requirements essential to ensure success with the growing of epiphytes, must be recognised.

They are, (A) a knowledge of the conditions existing in their place of origin and (B) a suitable growing medium.

(A) It is asking for failure to attempt to grow a plant from the tropical coast in the temperate zone and the reverse is equally true. This does not include warm glass house culture, which is, as yet, not a common practice. Some equation of conditions can be expected however if the tropical plants come from the higher altitudes.

(B) The cultivator has a very wide field. Without doubt, the best medium is a growing tree. Here, the adaptability and tolerance of the plants is exemplified. Several epiphytes are found only on one or two host trees in their native state, but, will readily transplant onto many others. Very few growers, however, have trees available.

The bark of the Melaleuca, (Commonly called "paper bark", or "ti-tree") is a proved medium. It can be tied in bundles, affixed to posts, boards or agricultural pipe.

Tree fern when cut into slabs, short logs, boards or crushed for potting material, is most valuable. The use of nursery pots, wooden or wire baskets, with suitable compost, is satisfactory for those plants whose

continued on page 8.

The Culture of Epiphytic Orchids. (continued)

rooting habit permits them to be grown in this manner.

Whatever method is used, firm attachment to the medium is most important. Place the plant in position and cover roots and base with some suitable material and secure. When using tree fern fibre, nylon fishing line will be found to be most suitable. Covering the base of the plant and roots furnishes a reservoir of moisture to encourage root growth and also offers some protection from damage brought about in tying the plant to its host.

Epiphytes that have their roots ensconced in moss or detritus in their native state, must be afforded a comparative condition on replanting and in this, the skill of the grower has full scope.

As different climates favour individual potting mediums, the question of what to use and how to use them must be a matter for the individual. This suggests a willingness to experiment and a capacity to recognise the factors contributing to successful culture.

The best aid to acquiring knowledge, is to visit growers in your own locality, or, visit a forest area and study plants in their native habitat.

A last note, when first replanted, more watering than natural precipitation is required to encourage root growth.

More detailed descriptions covering the various species will appear regularly in subsequent issues.

W.H. Murdoch, Robey Road, Coal Point. 2N. N.S.W.

ORDER FROM CONFUSION. AN ATTEMPT TO DESCRIBE THE MODERN SYSTEM OF PLANT CLASSIFICATION.

Eric Gordon.

Vivid memories of my wanderings in the wilderness of bi-nominal nomenclature have prompted me to attempt, with the approval of the Editor and my colleagues of the Australasian Native Orchid Society Council, to show those who may have the same problem, how to see the wood through the trees. Constructive efforts to clear up the problem of classifying plant life commenced with the work of the Swedish botanist Carolus Linnaeus who lived from 1707 to 1778. Prior to his time, study and classification of living things was tied up with superstition, mythology and supposition. Linnaeus devised an artificial system by which plants were divided into classes in accordance with the number of stamens, carpels etc. An enormous amount of work has been put into this study since then and the branch of Botanic Science known as Taxonomy is devoted to the principles of plant classification and identification.

In ancient Greece and throughout the Middle Ages plants were mainly divided by their characteristics such as growth habits, leaf structure etc. but it was realised in later years that the most constant factors of plants were their reproductive structures and behaviour. These factors are much less likely to be affected by things such as food and environment and therefore are more stable. Systems of classification are complete arrangements of all plants into a cohesive scheme, and many different schemes have been proposed, because botany, unlike chemistry, is not an exact science and accurate knowledge of the relationship between many plants is lacking. This of course, causes much diversity of opinion.

What is known as a natural system is usually thought to be the ideal and is the goal of taxonomy. The units of classification can be briefly described as follows.

The smallest unit of classification is the Species which is part of the next unit, the Genus (plural Genera). These are the units with which we are most concerned and I propose to discuss these units further on in these articles. To be continued in next issue.

MRS. H.M. ARNOTT,
18 LAKESIDE AVENUE,
KOGARAH. N.S.W.

MR. R. ARNOTT,
18 LAKESIDE AVENUE,
KOGARAH. N.S.W.

DR. C.D. BADHAM,
16 ORMONDE PARADE,
HURSTVILLE. N.S.W.

MRS. J. BADHAM,
93 DOLANS ROAD,
CRONULLA. N.S.W.

MR. D.B. BARNHAM,
1 BELMORE ROAD,
PEAKHURST. N.S.W.

MR. S.A. BATCHELOR,
2 WOODLANDS STREET,
BAULKHAM HILLS. N.S.W.

MR. R. BEDFORD,
13 MEDUSA STREET,
MOSMAN. N.S.W.

MR. C.R. BERGLUND,
15 BLIGH STREET,
NORTHBRIDGE. N.S.W.

MR. J.A.P. BLACKMORE,
25 HOLDEN STREET,
ASHFIELD. N.S.W.

MR. H.M. BORBIDGE,
"WERONA",
150 VICTORIA ROAD,
WEST PENNANT HILLS. N.S.W.

MR. T. BOWEN,
214 CANTERBURY ROAD,
REVESBY. N.S.W.

MR. E.L. BRADFORD,
22 MUSTON STREET,
MOSMAN. N.S.W.

MR. L.W. BROADBENT,
12 CLARENCE STREET,
PENSHURST. N.S.W.

MRS. D. BURLEY,
21 RAILWAY PARADE,
EASTWOOD. N.S.W.

MR. H.G. BURLEY,
21 RAILWAY PARADE,
EASTWOOD. N.S.W.

MR. S.L. BURLEY,
21 RAILWAY PARADE,
EASTWOOD. N.S.W.

MR. F. BURROWS,
5 CHILDS STREET,
LIDCOMBE. N.S.W.

MR. B. BUSHELL,
14 ASHBY AVENUE,
YAGOONA. N.S.W.

MR. I.A. BUTLER,
30 BOUNDARY ROAD,
WAHROONGA. N.S.W.

MR. D. CANNON,
28 ATTUNGA ROAD,
MIRANDA. N.S.W.

MR. W.F. CHILDS,
28 HUGHES AVENUE,
MASCOT. N.S.W.

MR. G.K.E. CLARK,
18 MILTON PLACE,
FORESTVILLE. N.S.W.

MR. S. CLEMESHA,
3 CONSETT STREET,
CONCORD WEST. N.S.W.

MR. K.B. COLLINS,
245 AVOCA STREET,
RANDWICK. N.S.W.

MR. G.E. COLTHUP,
22 CORELLA ROAD,
KIRRAWEE. N.S.W.

MRS. J. COOK,
111 FULLER STREET,
COLLAROY PLATEAU. N.S.W.

MR. M.J. CORRIGAN,
13 EMPIRE STREET,
HABERFIELD. N.S.W.

MR. R.J. CURTIS,
11 TUDAR ROAD,
SUTHERLAND. N.S.W.

MR. J.H. DAVID,
7 BRIDGE STREET,
EPPING. N.S.W.

MR. D.J. DAWSON,
4 CAMERON AVENUE,
ARTARMON. N.S.W.

MR. R. DEANE,
157 BEECROFT ROAD,
CHELTENHAM. N.S.W.

MR. H.F. DORE,
133 KAREENA ROAD,
MIRANDA. N.S.W.

MR. D. EDWICK,
"ERDINGTON",
ALLEN ROAD,
MULGOA. I.W. N.S.W.

MR. K. ELLIS,
29 MONTEREY STREET,
WENTWORTHVILLE. N.S.W.

MR. J.R. ENGLISH,
BOX 1603 G.P.O.,
SYDNEY. N.S.W.

MR. J.L. EZZY,
5 CORELLA ROAD,
KIRRAWEE. N.S.W.

MR. C. GARDINER,
9 KINGSGROVE AVENUE,
KINGSGROVE. N.S.W.

MR. C.R. GERARD,
85 AUBURN STREET,
SUTHERLAND. N.S.W.

MR. E. GORDON,
263 GOULBURN STREET,
SYDNEY. N.S.W.

MR. G.W.H. GRANTHAM,
234 WILLIAM STREET,
YAGOONA. N.S.W.

MRS. H.D. HALL,
31 WATERVIEW STREET,
MONA VALE. N.S.W.

MR. H.D. HALL,
31 WATERVIEW STREET,
MONA VALE. N.S.W.

MR. D.W. HARDIE,
"TIMBERLEA",
25 CONGHAM ROAD,
WEST PYMBLE. N.S.W.

MR. L. HICKSON,
22 STUART AVENUE,
NORMANHURST. N.S.W.

MR. H. HIRSCH,
12 DELMAR PARADE WEST,
DEE WHY. N.S.W.

MR. J. KENNY,
15 HAMMOND AVENUE,
CROYDON. N.S.W.

MR. R. KERR,
17 IDA STREET,
HORNSBY. N.S.W.

MRS. G. LAWRENCE,
1 FOREST ROAD,
BAULKHAM HILLS. N.S.W.

MR. J.L.C. LAWSON,
116 ROOTY HILL ROAD,
EASTERN CREEK. N.S.W.

MR. R.F. LEANEY,
EDWARD STREET,
NARRAWEENA. N.S.W.

MRS. G.E.B. LECKEY,
23 EARLE STREET,
CREMORNE. N.S.W.

MR. H.S. LEWIS,
39 GONDOLA ROAD,
NORTH NARRABEEN. N.S.W.

MR. N.F. LOADER,
GLYNNEDALE PARK,
DURAL. N.S.W.

MRS. S.M. LOADER,
GLYNNEDALE PARK,
DURAL. N.S.W.

MR. J. LUCKIE,
44 MONOMEETH STREET,
BEXLEY. N.S.W.

MR. P.W. MASTERS,
4 TORONTO PARADE,
JANNALI. N.S.W.

MR. C.T. MERRIN,
176 NEWLAND STREET,
BONDI JUNCTION. N.S.W.

MISS I. MEDCALF,
20 CROYDON ROAD,
CROYDON. N.S.W.

MR. P.B. METCALFE,
PARK ROAD,
WALLACIA. N.S.W.

MR. W.C. MILLS,
355 WILLARONG ROAD,
CARINGBAH. N.S.W.

MR. E.W. MILTON,
38 BUNDABAH AVENUE,
ST. IVES. N.S.W.

MRS. M.L. MORTON,
50 MORGAN STREET,
KINGSGROVE. N.S.W.

MR. E.W. MOSS,
112 FULLER STREET,
COLLAROY PLATEAU. N.S.W.

MRS. L.M. MOSS,
112 FULLER STREET,
COLLAROY PLATEAU. N.S.W.

MR. R.W. MOWBRAY,
28 McMULLEN AVENUE,
CARLINGFORD. N.S.W.

MR. R.G. NAPIER,
12 LAGUNA STREET,
CARINGBAH. N.S.W.

MR. N.G. NAPPER,
67 ESSALIA STREET,
COLLAROY PLATEAU. N.S.W.

MR. A.K. NORDSTROM,
77 ROSEDALE AVENUE,
GREENACRE. N.S.W.

MR. L.D. PARKER,
32 CALVERT AVENUE,
KILLARA. N.S.W.

MR. F.G. PIERCE,
32 HAWKESBURY ROAD,
WESTMEAD. N.S.W.

MR. F. PERRY,
26 MALCOLM STREET,
NARRABEEN. N.S.W.

MR. K.J. RAGAN,
37 McINTOSH ROAD,
DEE WHY. N.S.W.

MRS. C.R. REID,
13 LINDSAY STREET,
BURWOOD. N.S.W.

MR. R. ROLSTON,
KOORABAN STREET,
WATERFALL. N.S.W.

MR. T.J. RYAN,
52 WIMBLEDON AVENUE,
NARRABEEN NORTH. N.S.W.

MR. A. SALTER,
11 MUSGRAVE STREET,
CREMORNE. N.S.W.

MR. O.R. SAVILLE,
101 FOURTH AVENUE,
WILLOUGHBY. N.S.W.

MR. J. SAVILLE,
58 MORRISON ROAD,
GLADESVILLE. N.S.W.

MR. J.H. SCOTT,
101 BAUMANS ROAD,
PEAKHURST. N.S.W.

MR. G.H. SLADE,
5 OYAMA AVENUE,
MANLY. N.S.W.

MR. F.M. SLATTERY,
12 EDDYSTONE ROAD,
BEXLEY. N.S.W.

MRS. J. SLATTERY,
12 EDDYSTONE ROAD,
BEXLEY. N.S.W.

MR. G.J. SLATYER,
RIVER ROAD,
CAMDEN. N.S.W.

MR. W.R. SMOOTHEY,
15 MERLIN STREET,
ROSEVILLE. N.S.W.

MR. J.S. SOILAND,
55 IRIS STREET,
FRENCHS FOREST. N.S.W.

MR. S.F. STOUT,
113 HARROW ROAD,
BEXLEY. N.S.W.

MR. L.G. SWEENEY,
27 JERSEY STREET,
MT. COLAH. N.S.W.

MR. F.C. SWEETMAN,
67 TABRETT STREET,
ROCKDALE. N.S.W.

MR. C.M. TAYLOR,
142 ERNEST STREET,
CROWS NEST. N.S.W.

MR. A.J. TRIGGS,
41 NEW STREET,
AUBURN. N.S.W.

MR. W.T. UPTON,
5 WOORARRA AVENUE,
NARRABEEN NORTH. N.S.W.

MR. J.R. WALLACE,
240 HEADLAND ROAD,
DEE WHY. N.S.W.

MRS. C.E. WATERSON,
22 KANDY AVENUE,
EPPING. N.S.W.

MR. D. WEIKS,
5 CONSUL ROAD,
BROOKVALE. N.S.W.

MR. W.A. WEST, (Jnr.)
2 HUNTER STREET,
BALGOWLAH. N.S.W.

MR. A.F. WEST,
2 HUNTER STREET,
BALGOWLAH. N.S.W.

MR. K. WILSON,
34 CORAL ROAD,
CRONULLA. N.S.W.

MR. J.A. WILLIAMSON,
30 MITCHELL STREET,
PUTNEY. N.S.W.

MR. L.W. ARCHER,
31 AZALEA AVENUE,
COFFS HARBOUR. N.S.W.

MISS J.M. BALDWIN,
20 MACQUARIE ROAD,
SPRINGWOOD. N.S.W.

MR. D.J. BARRATT,
135 ROTHERY ROAD,
CORRIMAL. N.S.W.

MR. H.E. BRENTON,
3 LEVITT STREET,
WYONG. N.S.W.

MR. G.D. BRIDGLAND,
P.O. Box 91,
MULLUMBIMBY. 4C. N.S.W.

MR. N.T. BOWDEN,
40 NEWCASTLE STREET,
MAYFIELD. 2N. N.S.W.

MR. D.P. BRONSDON,
43 DONNISON STREET,
GOSFORD. N.S.W.

MR. L.I. CADY,
P.O. 88,
KIAMA. N.S.W.

MR. R. CATER,
14 POITREL STREET,
NEW LAMBTON. N.S.W.

MR. B. CHICK,
TWEED DIST. ORCHID SOCIETY,
16 WADE STREET,
MURWILLUMBAH. N.S.W.

MR. W.E. CHILDS,
17 KANTARA ROAD,
TOUKLEY. N.S.W.

MRS. J. COMERFORD,
WESTLAKES ORCHID SOCIETY,
BAY ROAD,
BOLTON POINT. 2N. N.S.W.

MR. C.W. COWIE,
65 KENIBEA AVENUE,
KAHIBAH. N.S.W.

MR. F. DOBELL,
NORTH STREET,
TERALBA. N.S.W.

MR. H.C. DORMAN,
RODGERS STREET,
TERALBA. N.S.W.

MR. H. DOUGLASS,
C/- CALIFORNIA GUEST HOUSE,
31 REDDALL PARADE,
LAKE ILLAWARRA SOUTH. N.S.W.

MR. W. McK. DOWLING,
"CANNINGALLA",
BANDON GROVE,
VIA DUNGOG. N.S.W.

MR. P. EASTON,
29 RAYMOND STREET,
WELLINGTON. N.S.W.

MR. K.E.E.ELLIS,
40 GREGSON STREET,
GLOUCESTER. N.S.W.

MR. C.H. EVERINGHAM,
BELLANGRY. N.S.W.

MR. J. FITZGERALD,
189a MAIN ROAD,
THIRROUL. N.S.W.

MR. J. GAVRILLIS,
28 ELBOW STREET,
WEST KEMPSEY. N.S.W.

MR. W.E. GILES,
SPRINGSIDE,
VIA. ORANGE. N.S.W.

MR. G. GILL,
GALBRAITH AVENUE,
TORONTO. N.S.W.

MRS. D.A. GORDON,
C/- POST OFFICE,
BERGALIA. 6C. N.S.W.

MR. B.J. HARTCHER,
80 MACKAY STREET,
DUNGOG. N.S.W.

MR. C.L. HAWES,
MACLEAY VALLEY ORCHID SOCIETY,
57 POLWOOD STREET,
WEST KEMPSEY. N.S.W.

MR. K. HOLMES,
"HAMPDEN HALL",
P.O. BOX 100,
KEMPSEY. N.S.W.

MR. V. HOLMES,
"HOLMESVILLE",
TOUKLEY. N.S.W.

MR. C.K. INGRAM,
19 KEPPEL STREET,
BATHURST. N.S.W.

MR. G.L. JUPP,
BINGLEBURRA,
VIA EAST GRESFORD. N.S.W.

MR. N.C. JUPP,
"RIVERDENE",
HALTON,
VIA PATERSON. N.S.W.

MRS. O.J. LAKE,
THE PARADE,
NORTH HAVEN. N.S.W.

MR. R. LLOYD,
TRADE WINDS,
WATKINS ROAD,
WANGI. N.S.W.

MRS. M.I. McLEAN,
CNR. LYNBURN AVE. &
PRINCES H'WAY,
BOMADERRY. N.S.W.

MR. A.A. MACKAY,
11 ELIZABETH STREET,
WAUCHOPE. N.S.W.

MR. J.W. MOORE,
"BROWNMORE",
VIA DUNGOG. N.S.W.

MR. W.H. MURDOCH,
ROBEY ROAD,
COAL POINT. 2N. N.S.W.

MR. A. NEAL,
16 GEORGE STREET,
WALLSEND. 2N. N.S.W.

MR. W.T. NEILSON,
CHICHESTER DAM,
VIA DUNGOG. N.S.W.

MR. H.W. O'MULLANE,
7 TERENCE STREET,
ADAMSTOWN HEIGHTS. N.S.W.

MR. G.A. PATTERSON,
50 MILDURA STREET,
COFFS HARBOUR JETTY.N.S.W.

MR. D.J. PHILLIPS,
18 YOUNG STREET,
WARATAH. N.S.W.

MR. R. RAINE,
74 DUDLEY ROAD,
CHARLESTOWN. 2N. N.S.W.

MR. H.G. SAUNDERS,
35 BENELONG STREET,
BULLI. N.S.W.

MR. A.H. SCOBIE,
BAY ROAD,
BOLTON POINT. N.S.W.

MR. D.W. SPINKS,
63 SKYE PT. ROAD,
COAL POINT,
VIA TORONTO. N.S.W.

MR. W.D. SPINKS,
63 SYKE PT. ROAD,
COAL POINT,
VIA TORONTO. N.S.W.

MR. G.E. STACE,
"WILLOW BROOK",
MT. RIVERS,
VIA PATERSON. N.S.W.

SGT. DON STEWART,
POLICE STATION,
GLOUCESTER. N.S.W.

MR. P.R. THOMPSON, (Jnr.)
130 HARLE STREET,
ABERMAIN. N.S.W.

MR. E. TODD,
EXCELSOIR PARADE,
TORONTO. N.S.W.

MR. H.E. BRENTON,
3 LEVITT STREET,
WYONG. N.S.W.

MR. W. TUCKWELL,
32 WENTWORTH STREET,
TELARAH. 3N. N.S.W.

MR. J.W. TWEEDALE,
STATION STREET,
BERRY. N.S.W.

MR. D.R. WALLACE,
WINBOURNE ROAD,
HAZELBROOK. N.S.W.

MR. M.G. WHITE,
58 LAWRENCE STREET,
GLEN INNES. N.S.W.

MR. B.T. WHITEHEAD,
CNR. THOMPSON & FACEY STS.,
FORBES. N.S.W.

MR. A.G. WILLOWS,
BAY STREET,
LAURIETON. N.S.W.

MR. N.R. WINNEY,
LOT 95,
GOOLA AVENUE,
KAHIBAH. N.S.W.

MR. A.C. BEAUGLEHOLE,
GORAE WEST,
VIA PORTLAND. VIC.

SISTER E.R. BOWMAN,
HON. SEC. S.G.A.P.,
4 HOMEBUSH CRESCENT,
HAWTHORN. E3. VIC.

MR. M. DERHAM,
11 GRAY CT.,
BEAUMARIS. VIC.

MR. J.B. FANNING,
20 NORTH STREET,
ASCOT VALE. VIC.

MRS. M. FISCH,
LEEDS STREET,
DONCASTER EAST. VIC.

MRS. M. GLASER,
"ELITE CAFE",
HIGH STREET,
RUSHWORTH. VIC.

MR. J. IVICE, (Jnr.),
15 AIREDALE AVENUE,
HAWTHORN. VIC.

MR. I. McL. OLIVER,
2 HAMILTON STREET,
EAST KEW. E5. VIC.

MISS E.M. REED,
130 WARRANDYTE ROAD,
RINGWOOD. VIC.

MR. A. STIRLING,
75 PARK ROAD,
CHELTENHAM. S22. VIC.

MR. C.W. PRICE,
556 WATERWORKS ROAD,
ASHGROVE,
BRISBANE. QLD.

MRS. L.H. DODWELL,
39 TOWERS STREET,
ASCOT. BRISBANE. QLD.

MR. J.W. CARR,
C/- FORESTRY OFFICE,
GYMPIE. QLD.

MR. J.J. DEVLIN,
33 DRAYTON ROAD,
TOOWOOMBA. QLD.

MR. I.D. WALLACE, (Jnr.)
DECOURSEY STREET,
MUNDINGBURRA.
TOWNSVILLE. QLD.

MRS. A.M. DAVIDSON,
CHURCHILL STREET,
MUNDINGBURRA.
TOWNSVILLE. QLD.

MR. G. FALAPPI,
BOX 272,
INGHAM. NTH. QLD.

MR. W.B. RUNDLE,
26 POWER STREET,
YEPPOON. QLD.

MISS J. VIGAR,
HAMILTON ISLAND,
VIA P.O. MACKAY. QLD.

MR. & MRS. J.P. CONQUEST,
THE RESERVE,
MITCHAM. S.A.

MR. H.C. ENGLAND,
31 ANGAS ROAD,
LOWER MITCHAM. S.A.

MR. H. GOLDSACK,
COROMANDEL VALLEY. S.A.

MR. F.N. HALL.,
BOX 34,
TEA TREE GULLY. S.A.

MR. R.J. LANGDON,
31 ANGAS ROAD,
LOWER MITCHAM. S.A.

MR. T.K. LOTHIAN,
DIRECTOR OF BOTANIC GARDENS,
NORTH TERRACE, ADELAIDE. S.A.

MR. R.C. NASH,
77 COROMANDEL PARADE,
BLACKWOOD. S.A.

MR. J.F. PROVIS,
65 OXFORD TERRACE,
PORT LINCOLN. S.A.

MR. B.J. DUDMAN,
31 MORSE STREET,
MONTELLO. BURNIE. TAS.

MRS. C. NICHOLAS,
7 KELVIN AVENUE,
MOONAH. TAS.

MR. J.G. SIMMONS,
30 RAVENSWOOD ROAD,
LAUNCESTON. TAS.

MR. A. STIRLING,
75 PARK ROAD,
LAUNCESTON. TAS.

MRS. F.M. COATE,
14 ECCLESTONE STREET,
BUNBURY. W.A.

MR. J.W. ELZAS,
173 SIXTH AVENUE,
INGLEWOOD.
PERTH W.A.

MRS. D.M. LEWIS,
C/- POST OFFICE,
BINDOON. W.A.

MR. R.R. OLIVER,
3 MARBELLUP ROAD,
ALBANY. W.A.

MRS. H. CHADIM,
P.O. BOX 15,
GOROKA. NEW GUINEA.

MR. E.D. HATCH,
583 TANE ROAD,
LAINGHOLM CENTRAL,
AUCKLAND. SW.4. N.Z.

MRS. G. WYLIE,
BOX 52,
BULOLO. NEW GUINEA.

MR. N. WILLIS,
4 RAILWAY PARADE,
THORNLEIGH. N.S.W.

MR. F. FORDHAM.
198 JESSIE STREET,
ARMIDALE. N.S.W.

MR. J.M. FRITH,
BOX 8 P.O.
BOOLAROO. 2N. N.S.W.

PROSERPINE ORCHID & FOLIAGE
PLANT SOCIETY,
P.O. BOX 55,
PROSERPINE. NTH. QLD.

MR. M.R. EDWARDS,
C/- COPELAND PUBLIC SCHOOL,
N.S.W.

MISS H. DRAKE,
311 LAKE ROAD,
GLENDALE. N.S.W.

MISS D. HACKETT,
13 DAY STREET,
TORONTO. N.S.W.

MRS. E. WHITTON,
"WEEMBAL", MACHANS BEACH,
VIA. CAIRNS. NTH. QLD.

MISS A. TAYLOR,
"WEEMBAL", MACHANS BEACH,
VIA CAIRNS. NTH. QLD.

MR. W.B. WHITEFORD,
73 ISABELLA STREET,
PARRAMATTA NTH. N.S.W.

MR. D.S. AYERS,
120 COPELAND ROAD,
BEECROFT. N.S.W.

MR. H.A. JAY,
2 LEICESTER STREET,
CHESTER HILL. N.S.W.

MRS. G. LANE,
CASTLE STREET,
LAURIETON. 2C. N.S.W.

This completes the list of Foundation Members of the Australasian Native Orchid Society. Membership is available to all persons prepared to support the Societies objects. The form herewith, should be completed and forwarded with cheque or money order to the Hon. Secretary.

TYPEWRITER APPEAL.
Has anyone a machine they don't need? Wal Upton our hard working Secretary could certainly make use of it. As a 50 word a minute man he would considerably increase his output with such an acquisition. Direct any offers to Wal as soon as possible.

All material by Mr. A.W. Dockrill appearing in this issue is copyright, and may not be reproduced without his permission.

THE AUSTRALASIAN NATIVE ORCHID SOCIETY.

Application for Membership.

NAME: (Block Letters).......................................

ADDRESS: ....

.... State ....

I wish to become a Member of the Australasian Native Orchid Society, and agree to support its objects and abide by its constitution. Subscription fee of £1. 5. 0 attached. Optional donation to the Publications Fund £............... is also enclosed.

Members Signature.........................

ORCHADIAN EDITOR: M.J. Corrigan, 13 Empire Street, Haberfield. N.S.W.

THE ORCHADIAN

October, 1963.
Number 2.

Published by the Australasian Native Orchid Society

Patron: Sir John Hall Best.
Vice-Presidents: Eric Gordon.
J.H. Scott.
Hon. Secretary: W.T. Upton.
Ass. Hon. Sec: S. Clemesha.

President: W.H. Murdoch.
Recordings: R. Curtis.
Gazette: R. Kerr.
Orchadian: M.J. Corrigan.
Treasurer: J. Soiland.

Price: 1/3.

INAUGURAL SYDNEY GROUP MEETING.

Held, 11th October at the Esme Hackett Hall, William Henry Street, Ultimo. 25 members attended & the following committee was elected:
President: D.W. Hardie. Vice-president: E.L. Bradford.
Secretary: R. Deane Treasurer: E.W. Milton.
Committee: D.J. Dawson. A.F. West. N. Willis.
Remember the next Sydney group meeting will be held at the above location at 8 p.m. November 22nd, 1963. All city members & visitors will be most welcome. Don't forget to bring a plant along for benching.

INAUGURAL HUNTER VALLEY GROUP MEETING.

The inaugural meeting of this group was held at the Maitland Town Hall, October 5th. The following committee was elected:
President: W.H. Murdoch. Secretary: W. Tuckwell.
Treasurer: W. Plant. Committee: N.C. Jupp. J.W. Moore.
B.J. Hartcher. W. McK. Dowling.

HERBARIUM & RECORDS.

Bob Curtis has received some records & herbarium specimens for the societies files. However, he would like to hear from more of our members. Records of finds, as previously mentioned are strictly confidential and not for publication. They do however, give the editorial committee much needed information which augments published reports in compiling copy for the ORCHADIAN.

We are indeed fortunate to have in this issue, articles by two of Australia's foremost taxonomists: Mr. Alick Dockrill & Leo Cady. Examples of their superb drawings may be seen on page 17 of this issue, we trust that you enjoy the result of their labours.

Mr. Alick Dockrill has been unanimously elected as the first honorary member of the Society for his great work in the study of the orchids of Australasia.

Vice-president, Eric Gordon has presented to the Society on extended loan, a Leitz binocular botanical microscope. This instrument has been insured for £200 and has been offered to Alick Dockrill, enabling him to continue his fine work in even greater detail. I am sure I speak for all members, in extending to Eric Gordon our sincere thanks for his magnanimous gesture.

BRIEF ABSTRACTS NO. I.

From "The Queensland Flora" by F. Manson Bailey F.LS.
Dendrobium delicatum. Bail.
Leaves 3 or 4 at the top of stem, 3" to 5" long, $\frac{3}{4}$" to 1$\frac{1}{4}$" broad, the apex obtuse or emarginate, the texture rather thin. Racemes 1 or 2 from 7" to 8" long, with 8 or 9 distant, fragrant, white flowers. Sepals 6 to 8 lines. Petals thinner and narrower than the sepals but about the same length; spur rather long and curved. Labellum delicate white speckled with purple, the middle lobe very short, apiculate, longitudinal plates yellow, column white.
Habitat: Main Range near Toowoomba.

STH. YARRA, S.E.1, VIC.
10 OCT 1966

DENDROBIUM KINGIANUM. Bidw.

H.J.R. Overall.

This very variable little plant was to be found in profusion along the coastal mountains from the Hunter River district in New South Wales extending to the southern forest covered mountain country in Queensland. Throughout the native habitat the rainfall would average something of the order of 40 inches p.a. Dendrobium kingianum is a terrestrial species. More frequently it is found growing on cliff faces. I have found it growing in coarse sandy or gravelly ground on rocky slopes and often in very exposed places. Frequently it occurs and certainly thrives under the very light shade and wind shelter afforded by open bushland. On one occasion when rambling through a mountain area in South Queensland I collected a specimen from the cliff face in a heavily shaded ravine. In this instance the pseudo-bulbs measured 21 inches in length. Temperature too, varies to a marked degree. Between Armidale and the coast the winter frost is indeed severe, summer temperature runs high. A knowledge of the conditions under which a plant species thrives in its natural habitat may well be accepted as a guide to its cultivation. Like a number of other Dendrobiums once plentiful in this coastal zone they remain only in places difficult of access.

For description of the plant I will take extracts from the reference work of my friend the late H.M.R. Rupp "The Orchids of New South Wales":- Plant very variable in dimensions, sometimes short stout pseudobulb, sometimes slender bulbous only at the base, Height to 30 cm., (12 inches) leaves 3 - 6. Flowers 2 - 9, varying in colour from pure white (rare) through shades of pink to deep mauve. "Lily-of-the-Valley Orchid", "Pink Rock Lily".

The flowers are usually about $\frac{3}{4}$ inch across, sometimes a little more and carried above the foliage. Aerial growths form freely at the top. In cultivating these, growths should not be removed until fully developed and roots formed. For pot culture I have followed the practice of cutting off part of the parent bulb in order to easily make firm in a (4") pot, packing broken crocks to about two thirds full, then adding a little tan-bark (or dead leaves) and just a covering of the latter. Immediately after flowering is finished, is the best time for potting, the new growth will then be about to commence. Perfect drainage is essential. When the plant is established it requires nutrient. Liberal feeding with fowl manure in growing season, plus ample water will be beneficial. A well grown plant in an 8" pot makes a fine specimen and may bear hundreds of pretty pink or mauve flowers in spring.

Var. pulcherrimum (Rupp) is of rare occurrence. The pseudobulbs rarely exceed 3 inches in height, the flowers are much larger than the type and very richly coloured. Rupp's specimen was from the upper Hastings River in 1937; the writer collected it near Bulahdelah about the same time. Unfortunately this form does not respond well to cultivation.

It seems clear that Dendrobium delicatum (Bailey) and Dendrobium kestevenii (Rupp) have originated from natural cross fertilisation of the species D. kingianum and D. speciosum.

Dendrobium delicatum, the type form described by Bailey was found on Spring Bluff near Toowoomba and is a strong growing plant of about 12 to 15 inches in height, bearing drooping racemes of 10 to 14 creamy coloured flowers with a flush of pink at the base. This plant was shared between Bailey, Weinthal and Swenson. Karl Swenson passed his portion to me. The original or type form has been preserved. A beautiful form of the delicatum group was later collected by the late Wilhelm Schmidt on the McPherson Range. This form is of soft pink colouring, suggesting Apple Blossom.

It is free flowering and decorative. Another form with pure white flowers hails from the border ranges, not so tall growing as the pink variety but still quite vigorous.

The D. kestevenii group comprising several variations was found on Alum Mountain at Bulahdelah. Two forms of D. kestevenii are illustrated in the Australian Orchid Review, Dec. 1938 and Dec. 1939. (These have long been extinct in the native habitat).

Apart from these natural hybrids of D. kingianum three others have been raised and flowered. While not "native" forms, these are of interest:- D. ellen (kingianum X tetragonum) raised by Mr. Wilhelm Schmidt

(Aust. Orchid Review, Dec. 1937) shows much of the character of D. kingianum but with influence of the other parent visible in the longer pointed sepals, petals and colouring at the tips.
The broad labellum of this pretty hybrid retains much of the character of its pollen parent (D. tetragonum). D. ellen is the first recorded Australian raised hybrid of D. kingianum.
An earlier hybrid raised by crossing D. speciosum with D. kingianum is recorded in Orchid Review, March 1908. This is referred to by Rupp in The Australian Orchid Review, Dec. 1939, wherein it is stated by Rolfe that a Mr. Spyers had raised a hybrid by crossing D. speciosum with D. kingianum and this hybrid agreed perfectly with D. delicatum. Therefore Rolfe said D. delicatum must be deleted as a species, and classed merely as a hybrid.
Rupp was not able to accept Rolfe's view as conclusive. At a later date, during our discussions and with the further evidence in the way of other forms collected in several locations and accepted as D. delicatum, it was agreed there was little doubt that the number of forms of D. delicatum and D. kestevenii had originated from natural cross pollination of D. speciosum and D. kingianum both of which species occurred in each locality.
In September 1952, I made two cross pollinations using a deep coloured form of D. kingianum which was collected by Mr. Schmidt on the McPherson Range some years earlier, as the pollen parent. These were D. falcorostrum X D. kingianum which I named "Bardo Rose" and D. kestevenii (a pink flushed form) X D. kingianum. This latter was named D."profusion", owing to the profusion of its flowers. Some forms of this latter hybrid are indistinguishable from D. kingianum. Two only being selected from a batch of 30 odd. D. bardo rose is a charming thing. The flowers are produced freely, they are much larger than the pollen parent, of the 80 plants flowered some are nearly 1¼ inches across. Colour ranges from pale to deep pink and with the delightful perfume of the seed parent. In habit of growth Bardo Rose is very like D. delicatum, height to 12 inches or over. D. profusion does not exceed 9 inches in height but produces numerous pseudobulbs these in turn bear 2 or 3 racemes.
An almost limitless and absorbing field of interest and pleasure lies open to the nature lover in preservation of the varied forms of this hardy little orchid.

H.J.R. Overall, 50 Bardo Road, Newport. N.S.W.

CALADENIA FILAMENTOSA R.Br. var. filamentosa

by Leo Cady, Kiama. N.S.W.

Plant slender to robust, up to 26cm. high. Stems dark, usually rather hairy, more so at the base: leaf narrow up to 18 cm.long by 1cm wide, hairy.Flowers 1 or 2 rarely 3, in eastern states flowers very attenuate, but in Western Australia, forms not so much, segments often up to 15cm.long, from sepal tip to tip, colour usually deep crimson, but in Western Australia white, yellow and cream forms occur. Sepals narrow-linear, finely caudate at apex, 4 to 8 cm.long. Petals shorter, filiform, all segments hairy towards the apex. Labellum small for the size of the plant, up to one-sixth as long as the sepals, undivided, ovate-lanceolate to almost cordate; the erect basal portion with serrate, crenulate or crisped margins, the anterior portion entire. Calli in 2 rows, fairly dense, short and stout, flat topped, extending to the bend. Labellum often lighter than the rest of the flower, sometimes with dark diverging veins. Column up to 1cm.long, shorter than the labellum, two yellow basal calli absent. Column wings short, mainly at the apex of the column, hatchet shaped lower portion of column very narrowly winged only. Anthers oblique with no anther point, 2 celled, valvate. Pollinia 4.

Caladenia filamentosa R.Br. var tentaculata (Tate) Rogers.
Identical morphologically to the type form except for colour. Flowers creamy coloured with dark mid-veins and markings. Perianth segments cream-coloured with red brown mid-veins & filiforms. Labellum conspicuously veined with divergent red-brown veins.
DISTRIBUTION - type - is found in South Australia - Victoria - Western Australia and very sparingly in N.S.W.
- var. tentaculata: Victoria - South Australia and Western Australia.

(continued next page)

Caladenia filamentosa R.Br. var tentaculata (Tate) Rogers. Continued.

FLOWERING PERIOD: Chiefly September - October.

REMARKS: The type form of this species is one of the commonest "Spider" Caladenia in Australia, particularly in the southern states, but in N.S.W. it is now mainly found in the drier inland areas. This species is extremely variable in both size and colour, this is particularly so in Western Australia where it attains its largest size and most brilliant colours.

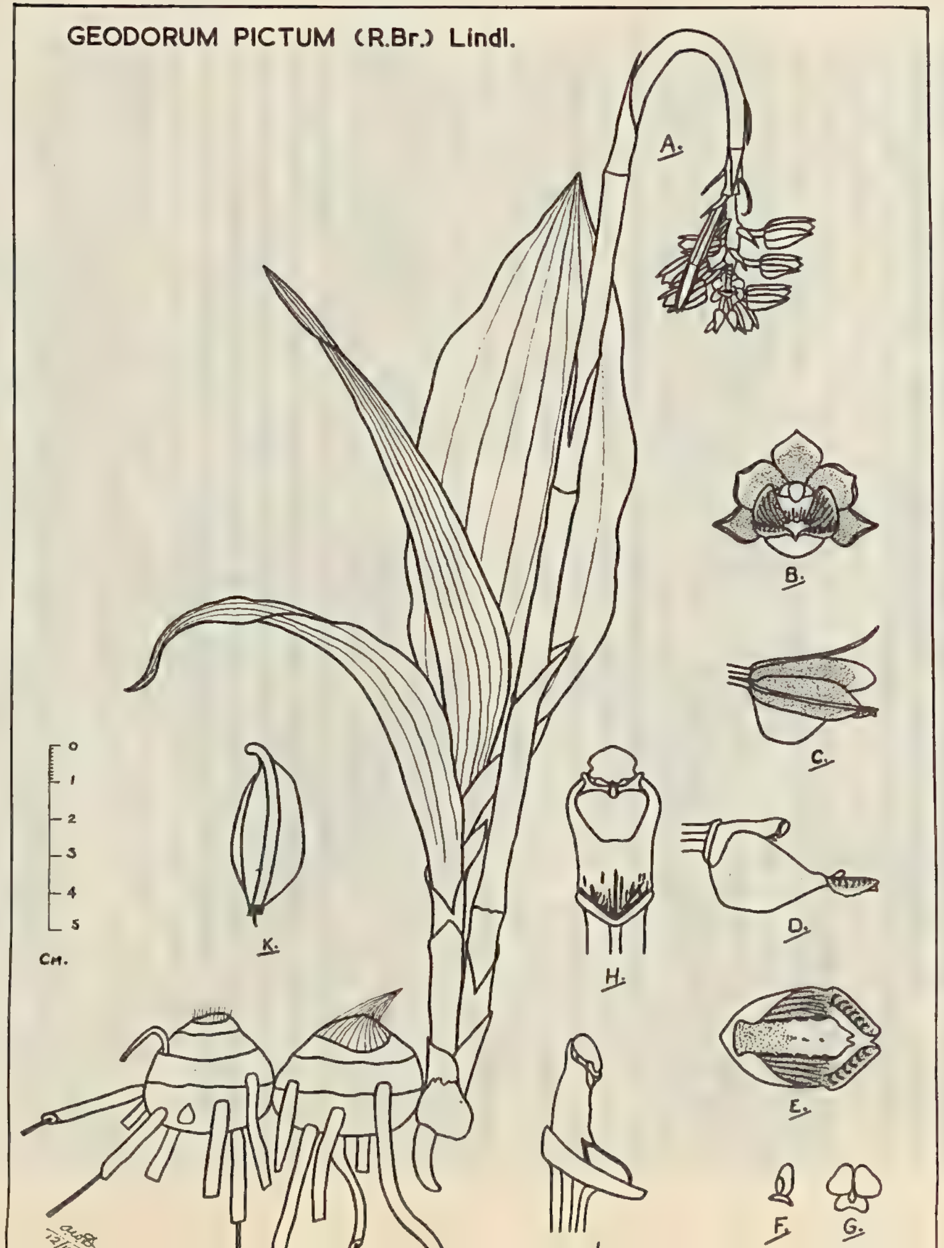
GEODORUM PICTUM (R. BR.) LINDL., GEN. ET SPEC. ORCH.175 (1833); BENTH., FLOR. AUSTR. vi: 299 (1873); F.M. BAIL., QLD. FLOR. 5: 1548 (1902); Rupp, ORCH. N.S.W. 110 (1943).
SYN.:- CYMBIDIUM PICTUM R.BR., PRODR. 331 (1810).

A deciduous terrestrial plant. Pseudobulbs 2.5 - 3.5 X 2.5 - 4.5 cm., green on top, of a flattened appearance, usually about half buried in the soil. Leaves 3 - 5, 15 - 35 X 4 - 8 cm., lanceolate with margins undulate, 3 ribbed and also 4 longitudinal veins. Racemes 15 - 30 cm. long (rhachis 0.5 - 1.0 cm. diam.), erect whilst developing, but as first flowers approach maturity, curving over, towards the apex, through about 180°; after fertilisation of the flowers has been effected, again straightening and proceeding with growth until over twice its length at time of flowering; bracts 5, the basal 2 large and sheathing, the third 5 - 7 X about 2 cm. and standing erect at the top of the crook, the remaining 2 hanging over the flowers. Pedicels averaging 5 X 2 mm.; bracts 10 - 25 X 3 - 4 mm., concave, narrow-triangular with an almost filiform point. Flowers 8 - 20, pale pink, crowded together with the bracts at the apex of the raceme, of a flattened tubular appearance, opening at the apex only. Dorsal sepal 11 - 18 X 3 - 5 mm., lanceolate. Lateral sepals 11 - 18 X 2.5 - 4.0 mm., cymbiform. Petals 11 - 18 X 2.5 - 4.0 mm., obliquely cymbiform. Labellum about 10 - 15 X 6 - 8 mm., pink with dark red or purple veining, saccate, trilobate, a secondary small shallow sack at the base; disc with, towards its apex, and extending to the centre of the mid-lobe, a yellow, narrow-obovate, bifid (to varying degrees), raised callous-plate. Lateral lobes obliquely depressed-triangular, very obtuse, incurved, column-embracing; mid-lobe depressed-triangular, emarginate, slightly concave, margins decurved. Column about 5 - 6 X 2.5 - 3.5 mm., wings rudimentary; foot short, almost perpendicular to column. Stigma more or less obcordate, slightly notched at base. Rostellum very small, narrow-ovate. Anther almost hemispherical, attached rather firmly by a narrow filament to the apex of the column. Pollinia 2, large, yellow, broad-ovoid, deeply incised, the 2 connected by a single short & broad stripe to a suborbicular viscidium. Capsule usually about 2.5 X 1.5 cm., ovoid, and obovoid.
DISTRIBUTION:- From about the Bellingen River, N.S.W. into far north Queensland, mainly coastal or near-by ranges. It is found in a wide range of situations (in north Queensland at least) being seen on ridge tops and bordering coastal swamps, but perhaps reaches its best in sandy soil behind coastal beaches. It is occasionally seen on the floor of rain forests, but generally prefers open forests, particularly those bordering rain forests.

FLOWERING PERIOD:- Usually December to February but influenced largely by climatic conditions.

REMARKS:- This plant makes its appearance, after the first summer rains, in the form of a forward growth from the previous season's pseudobulbs. The inflorescence, from the base of the new growth, develops parallel with the new "lead". The frequency of fertilised ovaries, plus the poor opening of the flowers, would seem to suggest that possibly the flowers are cleistogmatic. Capsules usually take 6 - 9 months to ripen, long after the leaves have died. Although an interesting plant and of unusual appearance, it could hardly be called a "horticultural gem" and I have yet to see a plant which has flourished in cultivation for many years. It usually grows in bush-fire frequented areas and every effort should be made to preserve it in its natural habitat.

GEODORUM PICTUM (R.Br.) Lindl.



A. PLANT.................................... TO SCALE

B. FLOWER FROM THE FRONT................. TO SCALE X 3

C. FLOWER FROM THE SIDE.................. TO SCALE X 3

D. COLUMN AND LABELLUM FROM THE SIDE..... TO SCALE X 4

E. LABELLUM FROM ABOVE................... TO SCALE X 4

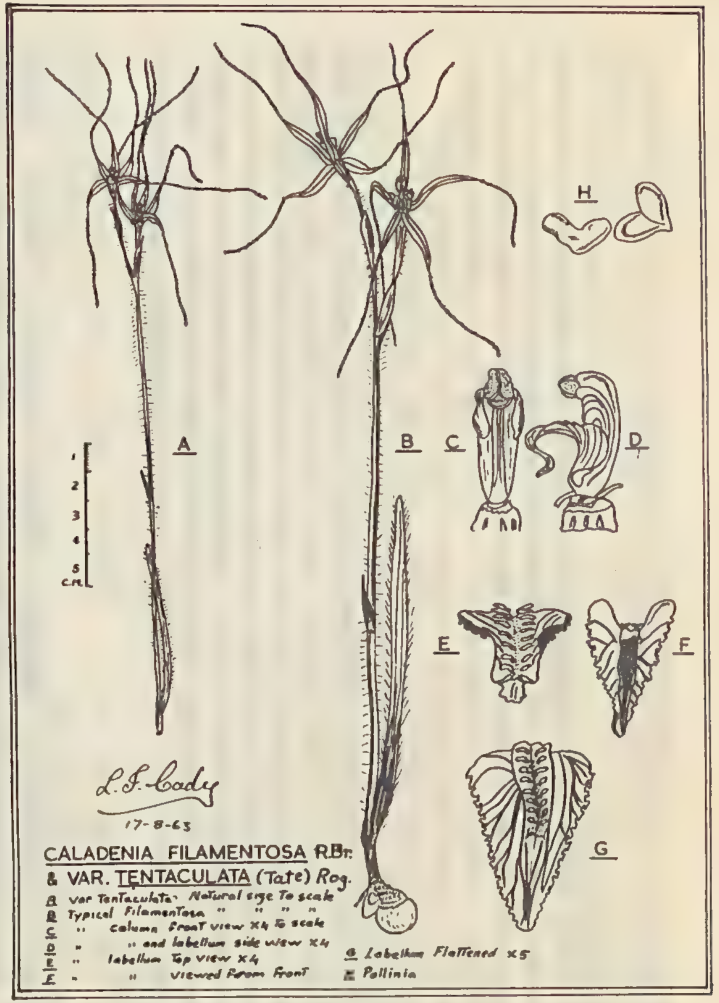
F. POLLINIUM FROM THE SIDE............... TO SCALE X 10

G. POLLINIA FROM THE FRONT............... TO SCALE X 10

H. COLUMN FROM THE FRONT................. TO SCALE X 7

I. COLUMN FROM THE SIDE.................. TO SCALE X 7

K. CAPSULE.................................. TO SCALE



L. F. Cady
17-8-63

CALADENIA FILAMENTOSA R.Br.
& VAR. TENTACULATA (Tate) Rog.

A var Tentaculata Natural size To scale
B Typical Filamentosa " " " "
C " column front view X4 to scale
D " " and labellum side view X4
E " labellum Top view X4
F " " viewed from front
G Labellum Flattened X5
H Pollinia

CULTURAL NOTES ON S.A. NATIVE TERRESTRIAL ORCHIDS.

R. Nash.

Pterostylis curta. R.Br.

Blooms - July to September. Habitat - Sheltered, shaded gullies of the central Mt. Lofty Ranges, rare and found in colonies.
Growing care - Place pots in a position well drained and in broken direct sunlight, away from heavy wind. Allow plants to receive as much natural rain as possible, keep pots moderately damp in summer, (the dormant period) if they dry out, do not water and allow to dry out a second time, this will cause the tubers to rot, simply place in a protected position in shade. During the growing season and until plants start to wither, try to keep compost damp or over damp. Pot population - These plants like to be moderately crowded. The best method is to start about 3 plants off in a 4" pot and when crowding is apparent, transfer to a larger pot and so on till it is absolutely necessary to divide into smaller pots again. If any of these plants should appear in pots with other species, remove them, as in a few years they will take over the pot completely.

Pterostylis pedunculata. R. Br.

Blooms - August to October. Habitat - Sheltered parts of the Mt. Lofty Ranges and the South East of South Australia. Some times found in open colonies. Growing care - Same as Pt. curta, except that compost should be kept drier during the wet season.

Pterostylis cucullata. R. Br.

Blooms - September to October. Habitat - Shaded, sheltered areas of the Mt. Lofty Ranges. Rare, sometimes found in groups or singly.
Growing care - Same as previous two species, but nearer to the conditions of Pt. pedunculata. This form will not multiply very well without the application of Urea. Pot population - I have found that this species does not propagate under crowded conditions, limit plants to no more than 3 to a 4 inch pot. Watch that new tubers do not grow out of bottom of pot. This species will grow better if placed in deeper shade than the last two.

Pterostylis robusta. Rogers.

Blooms - May to August. Habitat - Shaded banks, at the base of trees, mostly on the south side, on plain lands and lower hills. At the base of trees and under bushes with a northern aspect in the higher hills and mountains. Mt. Lofty Ranges, Sand hills west of Gawler, Mallee Lands in South Australia. Found in colonies, the juvenile plants being most prominent and numerous. Under the best growing conditions, 2 flowers may be obtained on the one stem, usually as twins in one growing season.
Growing care - Place pot in a position where it will drain well, be fairly well shaded and have plenty of head room and moderately free from wind. Keep damp, but a little on the dry side during the growing season, place in a cool moist spot in the summer. This species likes to be on the crowded side. As crowding becomes excessive, re-pot into a slightly larger pot.
The cultivation methods for the next 3 species, I have not really proved yet. They are Pterostylis barbata, Pt. mutica, Pt. vittata.

Pterostylis barbata. Lindl.

Blooms - September to October. Habitat - Amongst bushes in the central districts of South Australia.
It appears that these plants need very well drained conditions with heavy shade. Keep a layer of sawdust on top of the sand in the pot, let it rot down into the sand. Over crowding could be detrimental, if it is possible to get this many plants. When re-potting use lime stone gravel instead of broken pot.

Pterostylis mutica. R. Br.

Blooms - July to September. Habitat - Mallee lands, usually in shallow soil overlaying lime stone. Keep a layer of sawdust on top of the sand in the pot, let it rot down into the sand. When re-potting use lime stone gravel instead of broken pot.

Plants collected from the Flinders Ranges are more robust and tolerate a damper location.

Pterostylis vittata. Lindl.
Blooms - May to July. Habitat - Sandy or loamy soil: Adelaide Plains, Mt. Lofty Ranges, Mallee lands. Growing care - These are very temperamental, sometimes they grow well, then suddenly die, the moisture content of the soil may be the trouble. They may have a set life span as they only seem to propagate from seed, very rarely by vegetative propagation.

Acianthus exsertus. R. Br.
Blooms - May to July. Habitat - Under bushes, among rocks and at the base of trees, very common in the damper parts of South Australia, in colonies. Growing care - Place pots in a location where plants can get the full benefit of early morning sun with indirect light during the day. Pot must be well drained and reasonably sheltered from wind. Keep cool and shaded in the summer. Allow population in pots to reach a point just before crowding takes place, then re-pot. These may be grown with Pt. robusta.

Acianthus reniformis. (R.Br.) Schltr. Late flowering variety, red & yellow forms.
Blooms - August. Habitat - Shady positions in the higher and damper parts of the state, common in some areas. Found in colonies. The yellow form has only been found at Cherry Gardens and does not exist there now because the land has been cleared, also reported from N.S.W. Growing care - Place pots in a similar position as Acianthus exsertus and apply a similar culture. May also be grown with Pt. robusta.

Diuris maculata. Smith.
Blooms - September. Habitat - Open shaded areas in the damper parts of the state, quite common in some areas. Growing care - Keep pots well drained and in an open position, keep cool in summer. Break up into extra pots in preference to putting into a larger one.

Diuris palustris. Lindl.
Blooms - August to September. Habitat - Similar to D. maculata, but rarer in most areas, common in parts of the Murray Mallee. Use the same culture as D. maculata.

Caladenia latifolia. R. Br.
Blooms - September to October. Habitat - Sandy areas, mostly sand hills in the better watered parts of the state. Found in colonies, sometimes large, generally few flowers, but, flowers well after a bush fire has passed over the ground in which they grow. Growing care - Place pots in a rather open, moderately sheltered and shaded place. Re-pot into a deeper pot when tubers start to grow out of bottom of pot as they will do, in a shallow pot. Caladenia latifolia likes plenty of room.

BRIEF NOTES.

Pterosylis nutans. R. Br.
Will grow well under the method suggested for Pt. curta. However, they do like more shade.

Pterostylis nana. R. Br.
This species likes a cool, well drained, shaded spot, plants only last about 5 to 6 years. Regeneration is mostly by seed and will flower in the second season from germination.

Pterostylis alata. (Labill.) Reichb.
Same conditions as for Pt. mutica.

Pterostylis cycnocephala. Fitzg.
Same conditions as for Pt. mutica.

Pterostylis pusilla. Rogers.
Same conditions as for Pt. mutica.

Pterostylis longifolia. R. Br.
I have grown these for 6 - 7 years but they always die, I think these propagate only from seed.

Diuris brevifolia. Rogers.
This species grows well under the culture I use for D. maculata, but must be kept damper in the early summer.

Caladenia cardiochila. Tate. and Caladenia filamentosa var. tentaculata R. Br.
Use the same culture as for Pt. mutica, if possible plant in a cluster in pot.

Corybas dilatatus. Rupp & Nicholls. and Corybas diemenicus. Lindl.
Use the same culture as for Pt. robusta, however, put pots in a very well shaded and sheltered cool, damp location.

POTTING TECHNIQUE.

	Area.	Composition.
A	$\frac{1}{4}$ pot.	Mounded sharply at base of pot. Broken pot.)) and coarse washed sand. Lime stone pieces.)
B	$\frac{1}{4}$ pot.	Mounded on top of above. Sand, coarse or fine, washed, must not hold large amounts of water, but, should be capable of staying damp.
C	$\frac{1}{2}$ pot.	On top of above, smooth off to a level surface. sawdust - sand mixture.
D	Thin layer.	Apply thin layer of sawdust to complete.

E Tubers should be placed between layers B & C.
Pt. curta. Pt. pedunculata. Pt. cuculata. Area B & C to be proportioned 20/30 % sand & 70/80 % sawdust.
Pt. robusta. Acianthus exsertus. A. reniformis. Diuris maculata. D. palustris. Area B - 70/80 % sand & 20/30 % sawdust, C - 50 % each sand and sawdust.
Caladenia latifolia. Areas B 100 % sand, C - 80 % sand & 20 % sawdust.
Pterostylis barbata. Pt. mutica. Pt. vittata. Areas B & C, good washed sand, allow sawdust on top to rot down into sand, replenish every 3 years only. During each summer, remove about $\frac{1}{2}$ inch of top soil from pots and fill to top with new sawdust. I use fresh dry sawdust that is about 3 years old, from Eucalyptus camaldulensis, before it is used I damp it down well. Sawdust from other Eucalypts has also been used. Urea in the damping water proves beneficial. Spray every 3 to 4 weeks with Urea and apply super phosphate lightly once a year.
Spray to control mites, thrip, aphid, snails etc. Dusting and bait setting can also be used. If rot sets in on leaves, spray with a weak solution of chloride of lime.

PLANT WATERING.

Allow as much natural rain to reach plants as possible, in a dry winter it is necessary to hand water if pots become dry. A little water in summer is helpful with discretion.
When collecting plants, I remove all the soil except for the small amount that clings to the plant. Correct drainage is very important. Keep weeds under control, some small native plants could become pests, moss must be removed each summer.
A method I have used to help overcome dryout in summer and helps drainage in winter too. Lay down a concrete slab, large enough in area to accommodate the number of pots to be used, (this slab must have sides around it) place on top of slab, a 1 inch layer of $\frac{1}{2}$ inch blue metal, place pots on top of metal, spaced about 3 inches apart. Fill the spaces between pots with clean sand to just below the ridge of pot. It will be found that this method helps a lot in the control of weeds and pests as well as making watering easier.

R. Nash, 77 Coromandel Parade, Blackwood. S.A.

The Orchids of the Gloucester District.

D. Stewart & K.E.E. Ellis.

Gloucester is situated on the banks of the Gloucester River between the Mograni and The Bucketts Mountains. It is 185 miles north of Sydney and is approached by bitumen highway through scenic valleys that are unsurpassed for scenic beauty anywhere on the near north coast. The area is well known as a naturalists paradise and is extensively patronised by camera enthusiasts and bush walkers. The rivers rise in the Barrington Tops and Gloucester Tops area where the beech forests, tree ferns and moss covered trees prove that it has changed little during the past thousand years or more. Many of the rivers pass through un-frequented valleys where waterfalls are a common sight and rainbow trout abound. The whole district is rich in native orchids, both epiphytes and terrestrials. It takes a stout heart to find the ones really worth having. The outlying roads can only be traversed by four wheel drive vehicles and then only in dry weather. The mountain sides are precipitous, the gullies and scrub abound with snakes, ticks, leeches and stinging trees. For the purpose of this article we have divided the scrub into 4 types:

Wet scrub; where moss and ferns abound, providing a home for the lyrebirds, bower birds, platypus and scrub turkeys that frequent it. In this area we have found, Bulbophyllum crassulifolium, B. exiguum, Calanthe veratrifolia, Dendrobium monophyllum, D. pugioniforme, D. tenuissimum, D. teretifolium var. fairfaxii, Sarcanthus beckleri, Sarcochilus olivaceus, S. spathulatus, Taeniophyllum muelleri and Sarcanthus purpuratus.

Semi-dry scrub; consisting of small trees, shrubs and undergrowth usually frequented by the small birds, wombats and wallabies. In it we have found, Bulbophyllum aurantiacum, B. elisae, Dendrobium aemulum, D. beckleri, D. gracilicaule, D. speciosum var. gracillimum, D. speciosum var. hillii, D. tetragonum, Sarcanthus tridentatus, Sarcochilus australis, S. hillii and on the rock faces S. hartmannii, Rhinerrhiza divitiflora and Liparis coelogynoides.

Beech forest; where the trees grow among tree ferns and mossy gullies. This area contains Dendrobium falcorostrum and Sarcochilus falcatus (pure white form).

Open forest; where only the hardwoods grow. Growing on these we have discovered, Cymbidium suave, C. canaliculatum, Dendrobium cucumerinum and D. linguiforme. All growing high above our heads.
On the rock faces exposed to all temperatures, but usually sheltered from the westerly winds we find Dendrobium kingianum, ranging in height from 2 to 12 inches. In colours from near white to deep maroon. Dendrobium delicatum, Liparis reflexa and in the moist gullies Sarcochilus hartmannii.
We know that there are several more to be found, however, it is not an easy matter in the type of scrub in this area.
The Barrington and Gloucester Tops area is amongst the states best for terrestrials. In the winter months the ground is covered in snow and in the spring the orchids transform the mountain tops into a sight to be remembered. Not being sufficiently familiar with our terrestrials to be able to identify each species, we can only mention that the following Genera have been seen; Caladenia, Caleana, Dipodium, Diuris, Glossodia, Prasophyllum, Pterostylis, Spiranthes and Thelymitra.
We are transferring several of each genera found in the area, into a scrub nearby, so that we may have them available for inspection by visitors at any time. Numerous variations of the genera have been found and these offer an interesting study for the taxonomist.

K.E.E. Ellis, 40 Gregson Street,
Gloucester. N.S.W.
D. Stewart, Police Station,
Gloucester. N.S.W.

ORDER FROM CONFUSION. AN ATTEMPT TO DESCRIBE THE MODERN SYSTEM OF PLANT CLASSIFICATION. (Continued from ORCHADIAN No. 1) Eric Gordon.

For those who are interested, a simplified description of the other units of classification in ascending order follows.

Family: This a group of closely related Genera and the names of families usually end in "ceae" as in Orchidaceae and less often in "ae" as in Labiatae, a family of which our Prostanthera or "Mint Bush" is a member.

Order: Closely related families having certain things in common, but differing in others, form Orders. The names of Orders end in "ales".

Class: Related Orders form this unit, the various Classes have names ending in "ae", Monocotyledonae is the class to which Orchids belong.

Division: Orchids belong to the Division, Spermaphyta, which consists of closely related Classes. The names of Divisions end in "phyta".

To reverse the scale of classification we therefore have, commencing at the highest group: in the case of those plants we are interested in; Orchids

Division: (Spermaphyta)
Class: (Monocotyledoneae)
Order: (Orchidales)
Family: (Orchidaceae)
Genus: (Dendrobium)
Species: (D. speciosum)

On occasions, groups, if very large, are subdivided for convenience - Sub-orders, ending in - ineae (Rosineae), sub-families ending in - cideae (Caesalpmoideae) a tribe ending in - eae (Pomeae), a sub-tribe ending in - inae (Rosinae) of which the last three are sub-divisions of a family.

There are other groups or categories, below the grade of species, sometimes used, such as sub-species (ssp) variety (var.) sub-variety (sub var.), form (f.) clone (cl.).

As I have pointed out earlier, botany is not an exact science and therefore there is no precise definition of any one of these categories and the boundaries vary from one botanist to another. In nature each is more or less subjective to the other.

Nomenclature is the giving of names to plants, obviously plants unlike humans have no given names of their own, we only know them by the names we apply to them, "they are completely unable to say I am John Doe" as we can, whether we are telling the truth or not. We of course very seldom apply individual names to plants, our cat may be called "Tom" but we do not as a rule call our favourite Dendrobium Kingianum by a pet name - nevertheless all plants have had common names in many countries and many languages, with the consequence that some plants (i.e. pansy) have hundreds of common names.

It is purely by accident of history that Latin has become the basis of the modern scientific names as the Chinese, Aztecs at least had as good a knowledge of botany as our forbears.

After the fall of the Roman Empire, Latin was used throughout Europe because the majority of the people were semi-savages with rudimentary languages with very little means of writing. Although at a later date Latin became the basis of many modern languages such as Italian, French Spanish, etc., it was no longer spoken as in the days of the great Latins, Pliny etc.

This was a good thing, as dead languages do not develop as our own is doing and therefore a "dead" language can be used as a means of communication without fear that in succeeding periods it will become unintelligible by use of new words etc. Of course in the use of Latin for naming plants it was necessary to coin or "Latinise" many words which came from other languages - There are many names of plants in use to-day which are based on common names used in Greece and by famous Greek botanists such as Theophrastus - These were converted by Roman authors and today we use such names as Viola (violet), Populus (poplar), Quercus (oak), which were originally Greek common names, However, although many plants had numerous common names, so also did many common names cover numerous plants and it became necessary to apply adjectives to distinguish the different members of each genus - At one time several adjectives were used and the name became too long for reasonable usage.

This is where Linnaeus made the first step forward as he only used one adjective to describe the species. Therefore as most botanists agreed that this was a good idea it was decided not to go further back than 1753 for names in the future.

As I said earlier in this series of articles, the groups with which we are most concerned are Genera and Species and I now propose to give some idea of the principles behind the names of Genera.

Many genera have been named in memory of some person and in our orchids we find Caleana after G. Caley a collector for Sir Joseph Banks early in the 1800's.

The old name Drakaea (Spiculea), named after Miss Drake, a botanical artist for the Botanical Register.

Several botanists prominent in Australian botanical research have had genera named after them, such as Banksia, Benthamnia, Blighia (for Captain Bligh) and I am sure that study of any list of plant genera would reveal many others.

A second group of generic names are formed from combinations of two or more Greek or Latin words, one that comes quickly to mind being anigozanthos "unequal-flower" for the Kangaroo Paw. In the orchid world we have Dendrobium (g. dendron: a tree, bios; life), Sarcochilus (g. sarx, fleshy; chilos, a lip), and so on. I am sure that each one of you will be able to see the allusion in the case of each of these names.

(To be continued)

THE CULTURE OF EPIPHYTIC ORCHIDS.

W.H. Murdoch.

In our first number, it was noted that different climates favoured different growing mediums. This emphasises the point that no one person is likely to be sufficiently experienced to write for all epiphytes, in all localities covered by the Australasian Native Orchid Society. The Orchid Shows of 1963 are now completed. In almost every show on the eastern coastal area, native orchids had great prominence. Thousands of people, many for the first time realised that in our native orchids, we had something of which we could be proud. The result has been a widespread demand for plants and if any previous foreboding was felt for the fate of many of our plants, it is certainly intensified. With a wide and long experience with native orchids, I beg to suggest that not more than 10% of the plants brought from our forests survive more than a few years. This, in itself, suggests that perfection in cultural methods is a matter of first importance.

Successful growing methods vary considerably, but some offer more permanence than others. Let me quote a few bad examples noted in our shows. Dendrobium linguiforme and D. cucumerinum still on the boughs they grew on in the forest, the sap wood rotting away, leaving the plants to struggle on briefly before finally disintegrating. Small plants of Dendrobium kingianum in pots large enough to accommodate clumps of D. speciosum. D. falcorostrum tied onto boughs in a manner that presaged an early demise. (This one a prize winner).

We must aim to remedy these faults. The brighter side showed up in the Belmont show. An exhibit of Mr. Noel Jupp, consisting of about 20 plants of Sarcochilus falcatus - mounted on a root of Eucalyptus microcorys (Tallow wood). The root was aged and weather worn, with longitudinal grooves in which the roots of the plants thrived. His first prize was well merited. Another example was noted at the Gloucester show, where a plant of Dendrobium aemulum was affixed to a block of hard wood, with the roots covering the surface. In both examples it could be seen they had grown there for a long time. This method can be recommended. To be successful the plants must be tied on the mounting, using some indistructable material. Plastic covered wire, or nylon fishing line being favoured. The plant should be placed against the mount, with fibre, bark, moss, or other suitable material against the base of the plant. This will ensure moisture retention, to encourage root growth. The plant should be in a position to receive all the rain that it can. The amount of shade it requires may vary, but, very few plants have full sun for long periods - some rarely see full sun, but all can be inured to bright light when in full growth.

Trial and error must decide just what you can succeed with on hardwood. I have had success with quite a few, but must admit great care would be required with some.

(To be continued)

Foundation Member inadvertently omitted from original list:
Sister E.R. Bowman, "Homebush", 4 Homebush Crescent., Hawthorn E.3. Vic.
Foundation Member previously listed with incorrect name:
Mr. I.D. Walters Jnr., De Coursey St., Mundingburra, Townsville. Qld.
First Honorary Member:
Mr. A. Dockrill, 11 Balzer Close, Edge Hill., Cairns. Nth. Qld.

MR. J.W. WRIGLEY,
18 MOUNT IDA STREET,
EAST GORDON. N.S.W.

MR. E. BAGNALL,
2 WILSON STREET,
MAYFIELD. 2N. N.S.W.

MR. C.L. ROBY,
4 PALLAMANA PARADE,
BEVERLY HILLS. N.S.W.

MR. C.T. NAPTHALI JNR.,
51 BANGAROO STREET,
NTH. BALGOWLAH. N.S.W.

MR. G.W. ALTHOFER,
BOX 5,
DRIPSTONE. N.S.W.

MRS. A. ARTLETT,
106 LANSDOWNE STREET,
HURSTVILLE. N.S.W.

MR. A.M. BLOMBERY,
8 TERRY ROAD,
EASTWOOD. N.S.W.

MR. W. BERG,
57 ILLALUNG ROAD,
LAMBTON. N.S.W.

DR. L.J.J. BANATHY,
BOX 52,
BOOLAROO. N.S.W.

MR. A.G. BROWN,
8 MANGARRA ROAD,
CANTERBURY. E.7. VIC.

MR. H. BOND,
MARMONG PT., 2N. N.S. W.

MR. G.W. BENNETT,
25A LORRAINE STREET,
PEAKHURST. N.S.W.

MRS. W.J. CORRY,
4 MOSS PLACE,
WESTMEAD. N.S.W.

MR. H. CORNALLY,
185 MAITLAND ROAD,
MAYFIELD. N.S.W.

MR. M. CARSON,
41 TYRELL STREET,
GLOUCESTER. N.S.W.

MR. B.M. CARDWELL,
100 QUEENS ROAD,
CONNELLS POINT. N.S.W.

MR. W.A. CLARE,
23 BLACKWOOD AVENUE,
CASULA. VIA. LIVERPOOL. N.S.W.

MR. G.M. ELLIS,
BOX 145,
PORT LINCOLN. S.A.

MR. M.J. FIRTH,
SPREYTON.
TASMANIA.

MR. L.K. FOSTER,
32 PITT STREET,
COFF'S HARBOUR. N.S.W.

MR. A.S. GEORGE,
DEPT. OF AGRICULTURE,
JARRAH ROAD,
STH. PERTH. W.A.

GOLD COAST ORCHIDS,
14 BRAKE STREET,
BURLEIGH HEADS. QLD.

MR. M. SLADE,
GRAFTON DISTRICT ORCHID SOCIETY,
20 DOBIE STREET,
GRAFTON. N.S.W.

MR. K. GILES,
BATLOW. N.S.W.

MR. A.M. HALL,
GLEN ROAD,
EMU PLAINS. N.S.W.

MR. L. HUTCHINGS,
6 FRANCIS STREET,
COFF'S HARBOUR. N.S.W.

MR. C.A. LAMBERT,
164 NATIONAL PARK STREET,
MEREWETHER. N.S.W.

MR. P. LINDSAY,
4 EXCELSIOR AVENUE,
CASTLE HILL. N.S.W.

MR. R.M. LOWE,
MIOWERA ROAD,
TURRAMURRA. N.S.W.

MR. R.B. LOWE,
46 SMITHS AVENUE,
HURSTVILLE. N.S.W.

MR. D.G. MOFFATT,
64 SCHOLEY STREET,
MAYFIELD. N.S.W.

MRS. B. MOORE,
33A ARTHUR STREET,
BEXLEY. N.S.W.

MRS. N. PHIPPS,
516 RAILWAY PARADE,
HURSTVILLE. N.S.W.

MR. J.C. RICH,
36 BRIDGE STREET,
WARATAH. 2N. N.S.W.

MR. J.L. RAE,
9 HOWE STREET,
GRAFTON. N.S.W.

MR. W.H. PAYNE,
250 PICNIC POINT ROAD,
PICNIC POINT. N.S.W.

MR. R.J. SWITZER,
3 BENT STREET,
MACLEAN. N.S.W.

MR. P.H. SHEAFFE,
43 STUART STREET,
MULLUMBIMBY. 4C. N.S.W.

MRS. L.S. TAYLOR,
TASMANIAN ORCHID SOCIETY,
15 SUMMERHILL ROAD,
WEST. HOBART. TASMANIA.

MR. G.R. WARDROP,
6 MILES AVENUE,
RINGWOOD. VICTORIA.

MRS. D. WHEELER,
6 UNDERCLIFFE ROAD,
HARBORD. N.S.W.

MR. C.J. WATMAN,
10 COULSTON STREET,
TAREE. N.S.W.

MR. E.H. WHITFORD,
"LANDFALL", SCENIC HIGHWAY,
MEREWETHER. 2N. N.S.W.

MR. WILLIAMS,
21 KALORA CRESCENT,
CHARLSTOWN. N.S.W.

MR. J. WATERS,
14 FOURTH STREET,
BOOLAROO. N.S.W.

MR. I.N. SLADE,
PEATS RIDGE,
VIA. GOSFORD. N.S.W.

MR. W. TAYLOR,
GARDINER ROAD,
DORA CREEK. N.S.W.

MRS. H.J. MOXLEY,
21 KANGAROO STREET,
RAYMOND TERRACE. N.S.W.

MR. H. ELLIS,
"AQUAFLORA", ROCKY POINT,
TACOMA. N.S.W.

MR. A. SHAW,
20 TIRRILL STREET,
BLACKSMITHS. N.S.W.

MR. H.J. RHODES,
16 ALDUNGA STREET,
BLACKSMITHS. N.S.W.

MRS. W. TAYLOR,
GARDINER ROAD,
DORA CREEK. N.S.W.

MR. R. EYRE,
MAIN ROAD,
LOCHINVAR. N.S.W.

MR. E. DUNCAN,
96 PACIFIC HIGHWAY,
ROSEVILLE. N.S.W.

MR. F. SMITH,
C/- STUBBS PLUMBING CO.,
BOX 336, PT. MORESBY. T.P.N.G.

THE ORCHADIAN

December, 1963.
No. 3.

Published by the Australasian Native Orchid Society

Patron: Sir John Hall Best.
Vice-Presidents: Eric Gordon.
J.H. Scott.
Hon. Secretary: W.T. Upton.
Ass. Hon. Sec: S. Clemesha.

President: W.H. Murdoch.
Recordings: R. Curtis.
Publications: R. Kerr.
Orchadian: M.J. Corrigan.
Treasurer: J. Soiland.

Price: 1/3.

CORRESPONDENCE.

Editor: M.J. Corrigan, 13 Empire Street, Haberfield. N.S.W.
Hon.Sec: W.T. Upton, 5 Woorarra Avenue, Narrabeen Nth. N.S.W.

A PRESIDENTIAL MESSAGE.

This issue of THE ORCHADIAN, the third, brings to a close our first six months activities. We feel we are making real progress and a short report seems timely.

Our membership is steadily increasing and now stands at 288. Funds in the bank total £426.16. 0.

THE ORCHADIAN has been very well received and we are making every effort to further its usefulness. Our contributors have turned in meritorious work and our thanks are warmly accorded them.

Two geographical groups have been formed, one in the Sydney metropolitan area, the other in the Hunter Valley district. Others are proposed, in this regard we would enjoin all members to contact other members in their respective localities with this end in view and thus add impetus to our activities. At an early date we hope to be able to proceed with the formation of state and territory organisations.

IN CONCLUSION, MAY I, ON BEHALF OF OUR EXECUTIVE AND MYSELF, WISH ONE AND ALL THE COMPLIMENTS OF THE SEASON, MAY PEACE AND GOODWILL BE REALLY WITH US FOR THE FESTIVE SEASON.

Sincerely yours,
W.H. MURDOCH.

ORDER FROM CONFUSION. etc.

The Editor hopes that readers of Eric Gordon's article in this issue will not be unduly confused by finding the article scattered throughout the ORCHADIAN. Due to the layout of this issue I was left with little alternative. My apologies to author & readers.

DENDROBIUM LICHENASTRUM - A PROBLEM IN IDENTIFICATION.

The Editor has received several requests for information on the problem of differentiating between Dendrobium lichenastrum, its varieties & forms. Mr. Alick Dockrill has clearly set out in text and drawing, the salient points for your elucidation.

SYDNEY GROUP.

The next meeting of the group will be on January 31st, 1964, at 8 p.m. Esme Hackett Hall, William Henry Street, Ultimo. The last meeting, held on November 22nd, was a great success, although only 22 members attended. Sydney Group President Dave Hardie made a submission to the meeting, the theme being that one group would at this stage be sufficient for the Sydney area. His point being that to diversify our strength into several small groups would lead to loss of interest in the Societies activities. This was well received by the meeting and a number of members supported the President.

The meeting then discussed the provisional Standards for Australian Native Orchids adopted by the Orchid Society of N.S.W. Quite a few members joined in the discussion and copies of the standards were distributed. Some 30 plants were tabled. A description and comments were given by Bob Deane & Steve Clemesha, the exhibitors supplying additional information. All members should make an endeavour to attend the next meeting.

Remember January 31st, 1964. 8 p.m.

STH. YARRA, S.E.1, VIC.
10 OCT 1966

The Culture of Epiphytic Orchids.

This month, Mr. Noel Jupp describes his method of culture. His success with Native Orchids makes his contribution particularly valuable.
We have invited several noted growers to contribute and cordially extend this invitation to all who have something worth while to offer.
To be of value, the methods followed should have been tried over a period of time. A recital of failures would be of interest, very great interest in fact. If you follow a manuring plan, it can be mentioned. Just what you use, particularly if it is a commercial pack, can be omitted. This can be open to doubt as overt advertising. If you have carried out any comparative tests let us hear about them. Your opinion on debatable points are of value. Remember, you are writing under your own name and opinions vary.
This permits me to say, I view fertilising with the greatest of diffidence, I can vouch for at least seven collections of orchids being seriously damaged by this practice. In every case the grower had years of experience. Is it not feasable then, that many of the casualties in the collections of the learners can be ascribed to this practice.
My conclusions are, that where all factors are correct, some fertilising can add something, but, if the grower cannot grow it without manure, then manure, will not in itself ensure success. Finally, I feel convinced that more orchids are damaged by the injudicious use of manure, than are ever really assisted by it. Do you agree?
I feel I am, to use a colloquial expression, sticking my head out, but it is certainly my experience in growing over 50 genera of orchids, so, I do not manure.
Address your articles to the Editor, he can if necessary streamline your offering. He also has a blue pencil, but remember, hard facts, and no romancing.

W.H. Murdoch.

CULTIVATION OF NATIVE EPIPHYTIC ORCHIDS.

N.C. Jupp.

Many and varied media have been used for cultivating our native orchids both in pots and mounted specimens. These have been both successful and I am afraid in a lot of cases unsuccessful. My early attempts at growing our native epiphytes were on the whole unsuccessful and if plants did not actually die, failed to grow with any degree of vigour. Consequently I decided that a little observation would help provide a lot of answers, so I began to take note of how the various growers were growing them, under what conditions and what degree of success they had obtained. More particularly, I wanted to know exactly how they grew in nature, taking particular note of how the roots attached themselves to the host. Did they actually penetrate the debris, moss and/or layers of bark etc.
My first conclusions were that for the purposes of cultivation, what are generally lumped together should be divided into at least two categories; (1) semi-epiphyte and (2) straight epiphytes. The first group are reasonably easy to grow so there is no need to deal with them here. In this category I placed species such as Dendrobium speciosum, D. kingianum, D. delicatum, etc. In the second group are placed; Sarcochilus falcatus, S. olivaceus, Dendrobium aemulum, D. cucumerinum, D. linguiforme, etc. Most of this second group were grown on varying media, the main ones being tree fern blocks and limbs of melaleuca species. Both of these were in the main successful, but after a time these materials begin to decay and so absorb more moisture and this eventually led to the decline of the plants.
In my observations of plants growing under natural conditions, I noted that species in the second group, particularly Sarcochilus falcatus and S. olivaceus had roots adhering firmly to the bark of their host, especially when there was no debris or moss. In cases where these were present, very few roots actually ran through the surface of these materials. Consequently I decided I needed a material that would not readily break down and would only do so after a considerable period of time. Say ten to twelve years or more if possible. Also it must be readily available and its availability must not mean destroying any native flora.

Cultivation of Native Epiphytic Orchids. Continued.

Dead hardwood answered both of these requirements and in mid winter of '61, I began my first experiments using the hardwood blocks. My first species was Sarcochilus falcatus and about 18 to 20 plants of all sizes were placed on a hardwood pole about three feet long. Plants ranged in size from small, two leaved seedlings, to adult plants with 3 or 4 pairs of leaves.
Root development was slow at first, but by the following spring many roots had traversed practically the whole length of the hardwood pole. During the following weeks the whole flowered most profusely. The culmination of this experiment was in the spring of this year when it was presented to the judges at the Belmont Orchid Show, who awarded it a first prize. I have found using the above method of culture, a certain amount of dilute liquid fertiliser is necessary,as very little food is available to the plants on a hardwood block. About one quarter of the recommended dilution once per week is ideal. During hot weather plants can be watered as often as desired, but on hot nights a sprinkle about dusk is the most beneficial. No harm can come to plants on hardwood blocks through excessive watering or rain, as it cannot become soggy and even during dull clouded days drying out is rapid enough to prevent disease. Plants should be mounted and affixed with nylon fishing line or plastic covered copper wire and it is essential that the plants be as firmly affixed as possible.
Species that have been growing successfully by this method are Dendrobium teretifolium, D. linguiforme, D. cucumerinum, D. gracilicaule, D. tetragonum, D. striolatum, Bulbophyllum elisae, Sarcochilus falcatus, S. olivaceus. S. hillii is still under experiment but is showing every promise of success. With some species such as Dendrobium tetragonum in particular, a small pad of moss or fibre must be placed under the plant as a reservoir until the plant is fully established. Other species are probably suited equally well to this culture, such as the Nth. Queensland Dendrobium adae, D. fleckerii, etc.
Finally,if you wish to try this method of culture go slow and feel your way before plunging into it head first.

N.C. Jupp. "Riverdene", Halton. via Paterson.

BRIEF ABSTRACTS NO. 2.

From "The Queensland Flora" by F. Manson Bailey F.L.S.

Dendrobium kingianum var. silcockii.

Stems and leaves firm as in the typical form. Flowers pure white except the labellum and of thick substance. Pedicels white, ½" long. Ovary green, 2 lines long. Dorsal sepal 5 lines long, 3 lines broad, falcate, from point to point 7 lines, quite enclosing the elongated base of the column (spur).
Petals long as dorsal sepal but not so broad, incurved and meeting over the column. Labellum about as long as the sepals, lateral lobes spreading, pointed at the ends and reaching above the column, marked with lilac lines, middle lobe broadly cordate, apiculate, lilac lined with white. The disc bearing 3 thick ridges ending in points at the base of the middle lobe. Column thick and short. Anther-lid ciliate in front. Pollen masses amber-coloured.
Habitat: Towards the Tweed River.
By: P. Silcock.
(Editors note; A line represents 1/12 of an inch).

BRIEF ABSTRACTS NO. 3.

From "A Review of the Australian Species of Sarcochilus (Orchidaceae)". By the Rev. H.M.R. Rupp, B.A. in Proc. Linn. Soc. N.S.W. Vol. 1xxvi, parts 3-4, 1951.

4. S. weinthalii F.M. Bail., Q'land Agr. Journ., xiii, 1903, 346, and xxviii, 1912, 448; also in Compr. Cat. Q'land Pl., p. 534; Rupp, Orch. N.S.W., 1943, 134.
This plant when not in bloom is hardly distinguishable from smaller forms of S. falcatus. The flowers, numbering from 3 to about 12, are cream or white, blotched with dull reddish-purple, and the lateral lobes of the labellum are very narrow, with purple spots. The species seems to be very rare, being known only in one or two localities in southern Queensland, and near Kyogle in the far north of New South Wales.

DENDROBIUM LICHENASTRUM.

A.W. Dockrill.

Dendrobium lichenastrum (F. Muell.) Krzl. (Emend. Incl. Var. Dock.)

One of the frequent requests received by the present author is for an elucidation of this species. It is undoubtedly one of Australia's most controversial and complex orchids and has been the subject of treatment and question by numerous authors, most of whom were not the least familiar with the plant in its natural habitat, but, were dependent on the study of a few specimens in cultivation in glass-houses, or dried material in herbaria.

It was first placed in the genus Bulbophyllum and, indeed, its points of difference from that genus are slight. Nicholls, Nth. Qld. Nat. 8: No.55, pp. 3-4 (Sept. 1938); & ibid. No. 56, pp.2 (Dec. 1938); & ibid. 10; No. 68, pp.2-4 (March 1942) treated the subject rather extensively, giving some excellent illustrations and creating 2 species (making 4 in all) to cover the complex. Rupp & Hunt, Proc. Linn. Soc. N.S.W. 72: Pts. 5-6, pp.237-238 (Jan. 1948) expressed dissatisfaction with Nicholl's treatment. The present author, Nth. Qld. Nat. 24: No.115, pp.20-21 (May 1956) placed the 4 species (Dendrobium lichenastrum (F. Muell.) Krzl., D. prenticei (F. Muell.) Nich., D. variabile Nich. and D. aurantiaco-purpureum Nich.) under the one species, D. lichenastrum, in the light of experience in the field and of numerous specimens received from various collectors. Since coming to Cairns, in 1958, these findings have been born out in observations of thousands of plants in the field, the plant being extremely variable, both in plant form and flower, with no shortage of intermediates linking all forms.

Species are determined from the morphology of the flowers & the author has, on several occasions, placed flowers from many plants of the 4 "species" in a jar, shaken them about & then endeavoured, without avail, to sort out the various forms. Also, when all is said & done, the leaf-forms are no more diverse than those of, for example, Thelymitra ixioides Sw., T. pauciflora R. Br., or Bulbophyllum aurantiacum F. Muell. Examples of several leaf-forms occurring on the one rhizome are frequently seen, merging one into the other. The various means of attachment of leaf to rhizome stressed by Nicholls, lc. for the 4 "species" has been found to be quite unreliable, this feature being variable within the various forms.

Dendrobium lichenastrum (F. Muell.) Krzl., (Emend. Incl. Var. Dock.) Nth. Qld. Nat. 24: No. 115, pp.20-21 (May 1956).

An aggregate species of at least 2 varieties and 2 forms.

1. var. lichenastrum

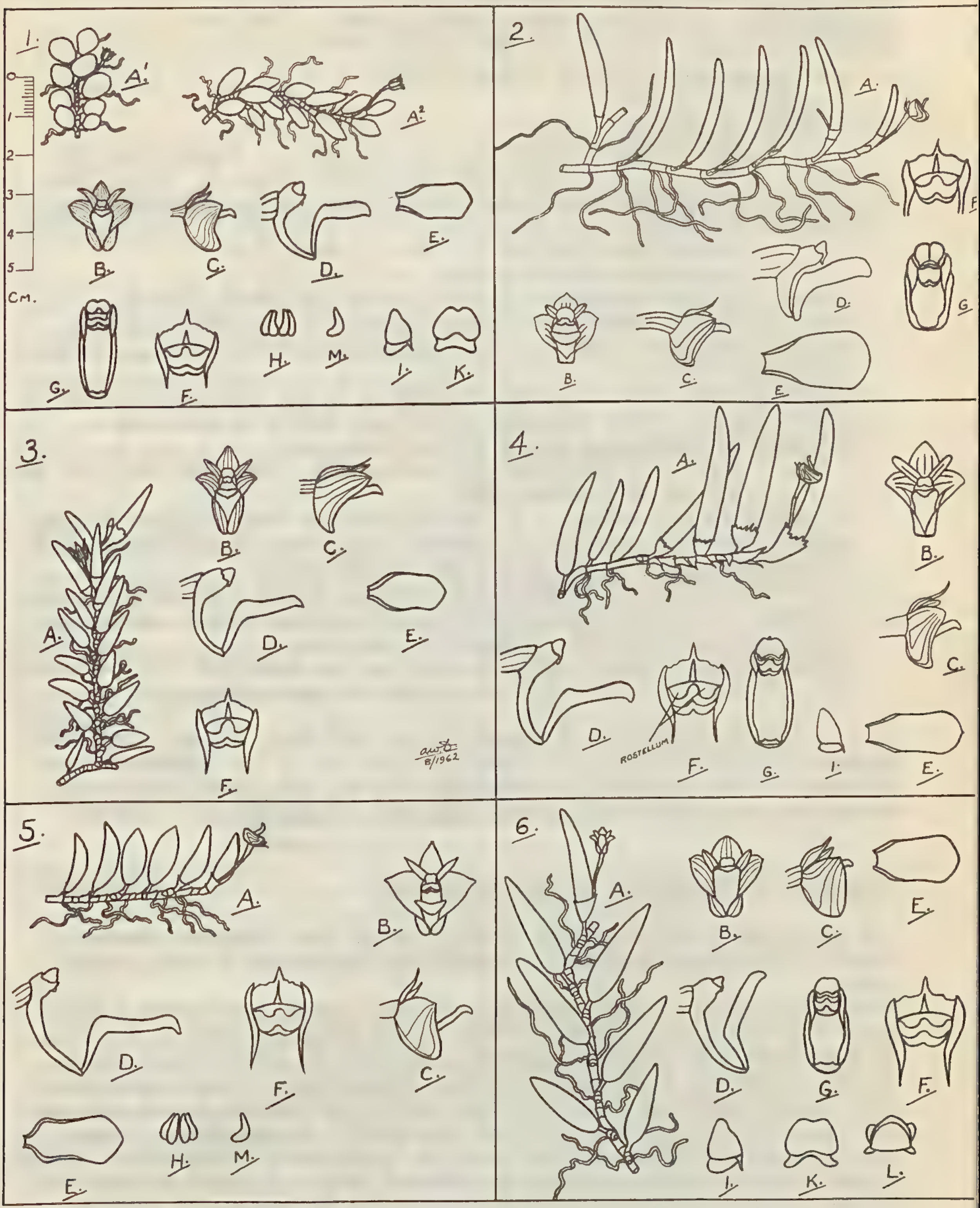
Syn.:- Bulbophyllum lichenastrum F. Muell., Fragm. 7: 60 (1869) Nomen; Benth., Flor. Austr. 6: 287 (1873); F.M. Bail., Qld. Flor. 5: 1537 (1902).

Dendrobium lichenastrum (F. Muell.) Krzl., Engl. Pflzr. 6: 26, 21, 289 (1910); Nich., Nth. Qld. Nat. 8: No. 55, pp.3-4 (Sept. 1938); Et. Ibid. No. 56 (Dec. 1938); Rupp et Hunt, Proc. Linn. Soc. N.S.W. 72: 245 (1948) (with illustrations by Nicholls).

Rhizomes extremely creeping and branching, flexuose, often forming dense patches on the bark of trees or on rocks, often clothed with the shredded, scarious remains of bracts. Leaves almost sessile, 4-10 X 3-6 mm., ovate, obovate, oblong or almost circular, flat, thick in texture. Flower solitary, on pedicel & peduncle 5-15 mm. long, 4-7 mm. across, rather widely expanding, dingy white, cream or pink with varying amounts of red stripes, and an orange or yellow labellum. Dorsal sepal 3-5 X 1.5 X 2.5 mm., ovate. Lateral sepals, in the free portion about 3-5 X 3-4 mm. and subtriangular, in the bottom portion joined at the back to form, with the column-foot and labellum-claw, a large, broad, obtuse, truncate or emarginate mentum 2-4 mm. long. Petals 2-5 X 0.3-0.7 mm., linear, obtuse or acute. Labellum hinged to the apex of the column-foot by a suberect, broad, canaliculate claw 3-6 X 1.7-3.0 mm.; lamina more or less at right angles to the claw, thick in texture, oblong, ovate or obovate, usually somewhat constricted in the middle and the apex usually decurved to a small degree, obtuse, sometimes apiculate. Column usually about 1 mm. long; wings rudimentary; foot curved, 2-3 mm. long. Stigma small, more or less transverse oblong. Rostellum small, bifid, the lobes obtuse. Anther peaked, rostrate; rostrum vertical, rather short but broad. Pollinia little more than 0.5 mm. long, boomerang-shaped when viewed from the side.

continued on page 30.

Some variants of Dendrobium lichenastrum (F.Muell.) Krzl. emend. Dock.



1. D. lichenastrum (F. Muell.) Krzl. var. lichenastrum A1 & A2 two different leaf forms.
2.) Some variants of D. lichen-
3.) astrum (F. Muell.) Krzl. var.
4.) prenticei (F. Muell.) Dock.
5.) forma prenticei.
6. D. lichenastrum (F. Muell.) Krzl. var. prenticei (F. Muell.) Dock. forma aurantiaco-purpureum (Nich.) Dock.

A. Portion of plant.....to scale
B. Flower from the front........ to scale x3
C. Flower from the side......... to scale x3
D. Column and labellum from the side...... to scale x5
E. Labellum from above.......... to scale x5
F. Top of column from the front (anther removed)..to scale x10
G. Column from the front........ to scale x5
H. Pollinia from the front...... to scale x10
I. Anther from the side......... to scale x10
K. Anther from the front........ to scale x10
L. Anther from above............ to scale x10
M. Pollinium from the side...... to scale x10

Dendrobium lichenastrum. (continued).
Distribution:- North Queensland, coastal ranges & highlands.
Flowering Period:- Almost any time of the year.

2. var. prenticei (F. Muell.) Dock. L.C.
A variety of 2 forms.
A. Forma prenticei.
Syn.:- Bulbophyllum prenticei F. Muell., Wing's Sth. Sci. Rec. 1; 173 (1893). F.M. Bail., Qld. Flor, 5: 1539 (1902).
B. lichenastrum Fitzg., Aust. Orch. 2: Pt. 5 (1893), Non F. Muell.
Dendrobium prenticei (F. Muell.) Nich. L.C.
Dendrobium variabile Nich. L.C.

Leaves amazingly variable, broad or narrow ellipsoid, terete, subcylindrical, sometimes slightly channelled & sometimes curved. Flowers similar to those of var. lichenastrum and just as, or more, variable.
Distribution:- Not as strictly confined to the highlands as var. lichenastrum, plants sometimes being seen almost at sea-level.

B. Forma aurantiaco-purpureum (Nich.) Dock. L.C.
Syn.:- D. aurantiaco-purpureum Nich., Nth. Qld. Nat. 10: No. 68, pp. 2-4 (March 1942).

As stated by the author, 1.c. attributing the rank of forma to this plant is not done without misgivings, its points of difference from forma prenticei are only slight but fairly stable.
Ovary and flower relatively robust; mentum broad; labellum-claw only slightly, if at all, channelled; segments rather widely expanding; sepals usually recurved, prominently red-striped.
Distribution:- Not strictly confined to the highlands but the author has not seen it at as low an elevation as forma prenticei.

A.W. Dockrill, 11 Balzer Close, Edge Hill, Cairns. Nth. Qld.

Readers are reminded that all material appearing in the ORCHADIAN under the name of A.W. Dockrill, is copyright and may not, under any circumstances be reproduced without this gentleman's permission. EDITOR.

CALOCHILUS SAPROPHYTICUS IN NEW SOUTH WALES.

J.A.P. Blackmore.

The most recent record for New South Wales is this "Leafless Beard-Orchid" (if such rare plants can really be considered to have common names).

This spring Mr. L. Holmes of Wyong, who has already discovered a new species in Caladenia holmesii, found in the Wyong district on the edge of a sawdust heap, and thus growing partially and artificially underground, an orchid which apparently was commencing to flower underground. With its whitish appearance he rather naturally thought he had come upon a further specimen of the "Underground Orchid", Cryptanthemis slateri. The plant was removed and despatched to the National Herbarium at Sydney. Unfortunately it had deteriorated somewhat before it could be examined by Mr. K. Mair, but after careful examination he pronounced it to be Calochilus saprophyticus. This orchid was first described by Dr. R.S. Rogers in 1930 but an excellent illustration of it appears in Hooker's "Flora of Tasmania" (published in 1858) and labelled "Calochilus campestris". The type specimen came from Cravensville in the Tallangatta Valley, Victoria. There are few other recorded localities although W.H. Nicholls records 270 specimens in 1942 from the Portland region of southern Victoria (by that renowned collector Cliff Beauglehole). Its range in Tasmania is unknown but it is listed by the Launceston Field Naturalists Club. The flowers are rather small for the genus, being very similar to those of the common species Calochilus campestris but being saprophytic in growth it has large thickened tuberous rhizomes and no leaf. Unlike the other common saprophytes Dipodium, Gastrodia and Galeola, it has however, large tubers in addition to the rhizomes.

References are as follows:

Transactions Royal Society, South Australia 54:p.41 (1930) R.S. Rogers
Victorian Naturalist 59:p.157 (1943) W.H. Nicholls.

Calochilus saprophyticus in New South Wales. continued.

Proceedings Linnean Society of N.S.W. 71:p.290 (1947) H.M.R. Rupp.
Orchids of Australia W.H. Nicholls. Vol. 1. Plate 53.
A Handbook to Plants in Victoria J.H. Willis. Vol. 1. p.356.

J.A.P. Blackmore, 25 Holden Street, Ashfield. N.S.W.

ORDER FROM CONFUSION. AN ATTEMPT TO DESCRIBE THE MODERN SYSTEM OF PLANT CLASSIFICATION. (Continued from THE ORCHADIAN No. 2) Eric Gordon.

There is another group of generic names which come from common names used for the plants in the lands in which they were first discovered. I cannot think of any Australian orchid genera in this group. Many generic names are based on names of poetic or mythological origin. The one that comes quickly to mind in thinking of our orchids is Oberonia. Those of you who are young enough will remember that Oberon was the king of the fairies.

These are only a few examples of the types of generic names and there are lots of others -

The Specific Epithet. This is the name by which the second part of the scientific name is now known, Linnaeus called it the "trivial name". In the early days plants were known by a descriptive adjective and as a result the commonest form of specific epithet is the descriptive one-

Examples of the different ones are as follows;

Colour; rubra (red) alba (white) flavum (yellow) coccinea (scarlet)

Size, shape or habit; nana (dwarf). gigantea (giant). tenuis (thin). crassa (thick). concinna (neat). curta (short).

Relative abundance; vulgans (common). rara (rare).

Habitat; palustris (in swamp). alpina (of high altitudes). arenaria (in sand). campestris (in fields). arvensis (in cultivated fields).

Characteristics; exsertus (projecting). odoratum (perfumed). ophioglossa (forked like a snakes tongue). plumosum (feathery).

Where found; diemenicus (of Van Diemens Land). australis (southern).

Another form of specific epithet is an adjective formed by combining two or more Greek or Latin words, examples being:

filamentosa (threadlike). latifolia (broad-leaved). grandiflorus (large-flowered). leptochila (thin-lipped). sulphurea (sulphur-yellow).

A third type is formed from a noun, with a suffix indicating a resemblance or relationship, as:

aconitiflorus (with a flower like that of Aconitum). crassulifolium (with leaves like Crassula). dendrobioides (like Dendrobium).

A fourth specific epithet is the one in honour of some person, usually a botanist or some person connected with the original finding of the species - These are formed from proper names and are written either as nouns in the possessive case such as Caladenia fitzgeraldii (Fitzgerald's Caladenia), or as possessive adjectives as Pterostylis daintreana (Daintrey Pterostylis) or to use a name that is no longer valid but which is a good illustration Oberonia fitzgeraldiana (Fitzgerald Oberonia).

A fifth form of specific epithet is a noun itself and often comes from an old Latin or Greek word for some plant that could have become a generic name (some did) but is now reduced to a name within another genus.

The obvious examples of this are the scientific name of the Apple, Pyrus malus (Malus was the old Roman word for the apple), or the Cherry, Prunus cerasus (Cerasus was the Roman word for the sour cherry).

Another example, using a name from an aboriginal language is Tobacco, Nicotiana tabacum (Tabacum is the TAINO word for Tobacco). The Tainos were aborigines of the West Indies.

Quite often this type of specific epithet is written with a capital letter, but most botanists now believe that there is good reason why all specific epithets, whatever their origin should be spelt with small initial letters. The argument that the origin of the epithet would be lost by this action, does not hold good for the simple

continued on page 34.

A SARCOCHILUS PROBLEM.

S. Clemesha & W.T. Upton.

Confusion has occured in differentiating between Sarcochilus australis, S. olivaceus & S. spathulatus. The authors hope that this article will assist in identifying the three species.

Sarcochilus australis Lindl. The "Butterfly" orchid. This species was discovered in Tasmania by Ronald Gunn & described as Gunnia australis Lindl., in 1834. It was subsequently named Sarcochilus parviflorus Lindl., S. gunnii F. Muell., Sarcochilus barklyanus F. Muell., Thrixspermum parviflorum Reichb. f., Thrixspermum australe Reichb. f.. For many years it was better known as S. parviflorus but S. australis must take priority it being the earlier name. The name parviflorus meaning "small flowers", was unsuitable as a number of species such as S. hillii F. Muell. & S. adversus Hook., have smaller flowers. The name australis meaning "southern" is very suitable as the plant is typically a southern orchid. Reported only from Gloucester & Paterson in the north, it is not uncommon in a number of coast & range areas south of these points. It is found in Victoria, the only other Sarcochilus in that state being S. falcatus R. Br., which is known only from the Cann River.

Only New Zealand's Sarcochilus adversus grows further south by extending to Stewart Island. The only south Queensland recording of S. australis is almost certainly an error in identification of what was no doubt S. spathulatus Rogers.

S. australis prefers trees such as myrtles, laurels, musks & occasionally paper barks. It grows in sheltered gullies near water. Usually starting life on small twigs where a large root system soon forms. Plants on tree trunks are not uncommon, only one of the authors has seen a plant growing on rock. The leaves are thick compared with S. olivaceus & rarely covered by ferns & mosses. Normally up to 4 flower racemes appear, each bearing up to 16 fragrant flowers which often all face the same way & last up to 3 weeks. The sepals & petals are browny-olive green, with faint purple suffusions on the back. The labellum is white with red-purple markings. It flowers from August to December.

One of the authors has recently received a specimen of Sarcochilus australis from Mrs. C. Nicholas of Hobart, Tasmania. The specimen had been collected from the extreme north west of Tasmania. It differs from the forms the authors have seen previously, although the perfume is identical. Listed below are the main points of interest:

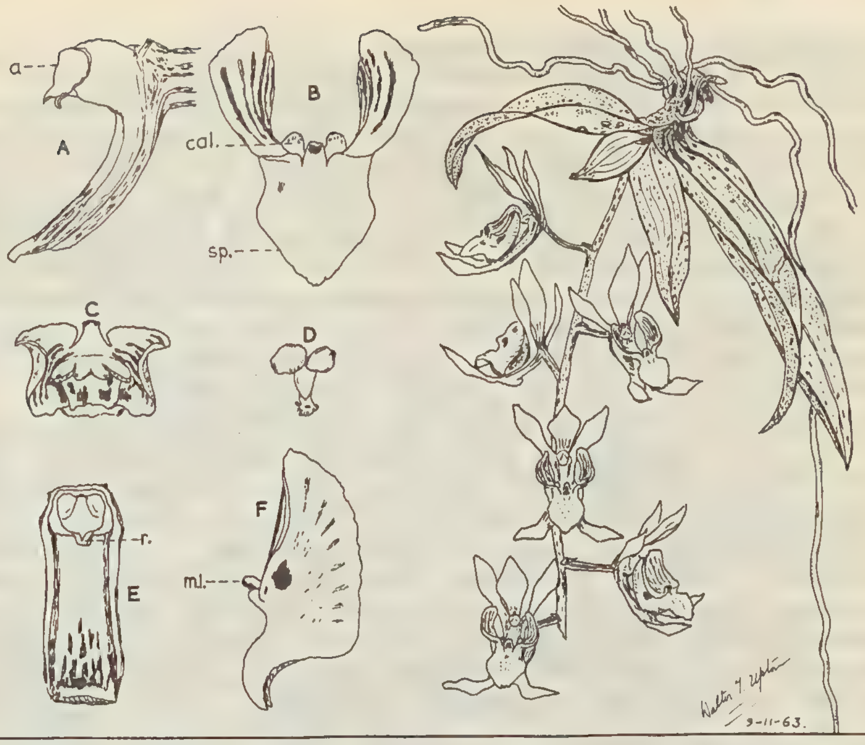
1. The raceme is shorter, greener & more compact.
2. The sepals & petals are paler & devoid of the faint purple markings.
3. The red-purple spot on the outside of the lateral lobes of the labellum are absent.
4. The large conspicuous blotch on the mid lobe of the labellum is very faint, small & inconspicuous in this form.
5. The foot of the labellum is much narrower, though spreading slightly at the tip & is also poorer in texture.
6. The labellum markings are bright violet, whereas those of the N.S.W. forms are usually red-mauve.

Mrs. Nicholas also brought to the authors attention, the fact that, Sarcochilus australis grows on Cape Barren Island in Bass Straight.

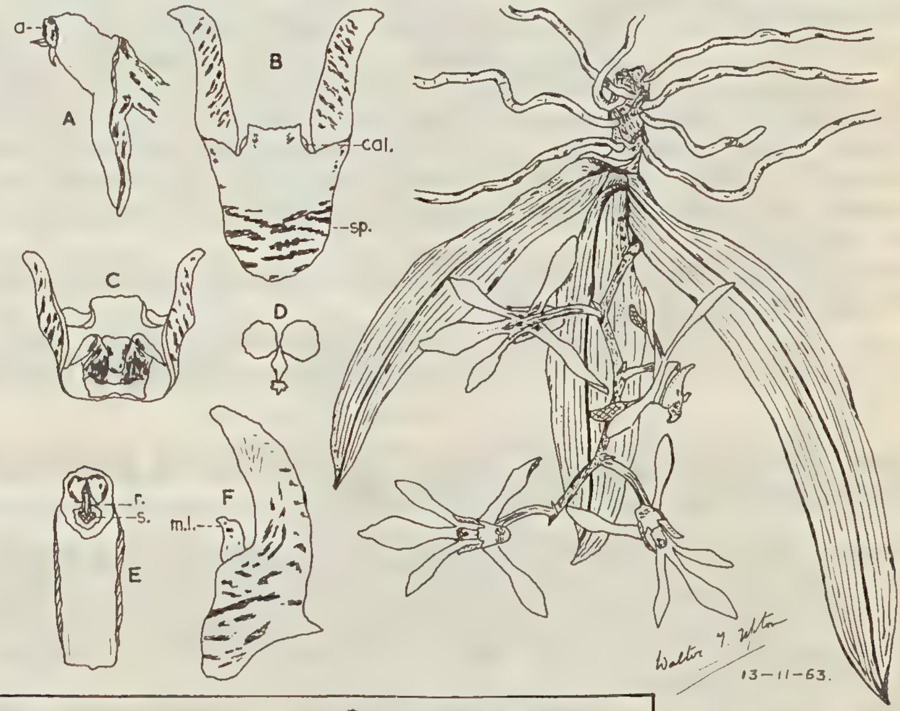
Sarcochilus olivaceus Lindl. This species was first described in 1839. It ranges from Bega N.S.W. to the mountains of north Queensland, being fairly common in rain forests, growing on small twigs, tree trunks & on rocks. The often large, thin leaves are very variable in shape. The racemes are often shorter than the leaves. The flowers are variable in shape & colour, the sepals & petals are a golden yellow-green to olive greeny-brown. The labellum is creamy, with red-brown markings. The lateral lobes are small compared with S. australis & are faintly lined with red-brown. The spur is cream with various red-brown markings in the lower half. The upper half is mainly devoid of these.

S. olivaceus Lindl. variety borealis Nicholls. This is a rare plant from the north Queensland highlands. It has darker flowers blotched with deep red-brown. S. olivaceus has been confused with south Queensland's S. dilatatus F. Muell. The plants of S. dilatatus do not grow as large as those of S. olivaceus & the flowers are smaller (up to 5 are produced). The sepals and petals are pale at the base, shading to deep brown. The labellum is whitish & the perfume quite different. It grows in semi dry vine scrubs on hills of the coastal plain.

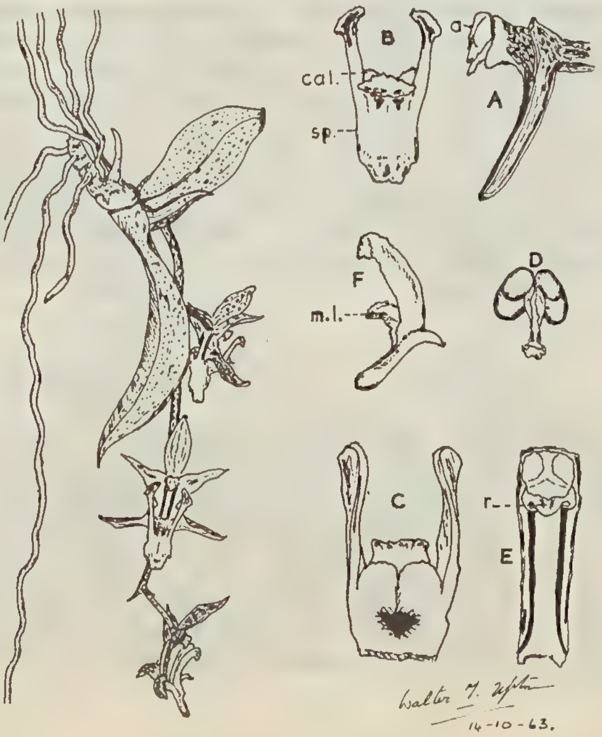
continued page 34.


SARCOCHILUS AUSTRALIS [Lindl.] Reichb. f.

Walter T. Upton
9-11-63.


SARCOCHILUS OLIVACEUS Lindl.

Walter T. Upton
13-11-63.


SARCOCHILUS SPATHULATUS Rogers

Walter T. Upton
14-10-63.

KEY

A Column from side.

B Labellum from front.

C Labellum from above.

D Pollinia.

E Column from front.

F Labellum from side.

Plants natural size.

A,B,C,D,E,F, variously enlarged.

a, anther. cal, calli. sp, spur.
m.l, mid-lobe. s, stigma.
r, rostellum.

A SARCOCHILUS PROBLEM. Continued.

Sarcochilus spathulatus Rogers. The "Tiny" Sarcochilus. This little plant was discovered at Tamborine Mountain, south Queensland, by Mrs. Hilda Curtis in 1925 & by the Rev. Rupp near Barrington Tops just 5 days later. Since then it has been found in a number of areas between the Hunter & Brisbane Rivers. It grows on small twigs often at the edge of streams in association with *S. olivaceus* & *Sarcanthus beckler*ii.
S. spathulatus normally has 2 or 3 leaves which are heavily blotched. The degree of this is normally greater than in the related species. The plant normally produces from 1 to 3 flowers during October. The sepals & petals are greeny-brown. The plant received its name from the spathulate (spoon shaped) lateral lobes of the labellum. In our opinions, the flowers we studied (from the Gloucester area) have club shaped lateral lobes. The labellum is paler than the sepals & petals. The lateral lobes are marked with red-mauve near the apex. The small mid lobe is pale, but, with red-mauve marking immediately below it. The hollow spur is faint olive greenish with light red-brown markings. The authors now consider that *S. harriganae* Rupp from the Dorrigo Plateau N.S.W. is only a form of *S. spathulatus*, or to quote the Rev. H.M.R. Rupp, "The dull-green flowers almost suggest a natural hybrid *S. olivaceus* X *S. spathulatus*; their general confirmation agrees with the former, while the lateral lobes of the labellum are definitely spathulate". The rows of fine spots on the leaves of *S. harriganae*, a feature believed characteristic, were absent on the new leaf of a cultivated plant. Some suggestions have been made that these spots were caused by wasps. All the species discussed, particularly *S. australis*, have reputations for being difficult to cultivate. The authors find they grow well when tied firmly with nylon fishing line to "paper bark" logs & hung in a semi-shaded spot protected from drying westerly winds. Good ventilation appears to be another essential. As the plants are soft in nature & have no pseudobulbs, care when moving plants is essential.
Sarcochilus are protected plants & must always be regarded as such in order to prevent their extinction.

S.C. Clemesha, 3 Consett Street, Concord West. N.S.W.
W.T. Upton, 5 Woorarra Avenue, Narrabeen North. N.S.W.

Order from Confusion. An Attempt to Describe The Modern System of Plant Classification. (continued from page 31.)

reason that geographical epithets (as *diemenica*, *queenslandica*) have long been written with a small initial but the meaning is still clear. The latest "Rules" provide for the use of the small initial letter although stating that authors who wish to use capital initial letters for special epithets may do so.
When the specific epithet is an adjective it must agree grammatically with the generic name which is always singular and in the nominative case. Differences in gender do occur and generic names are either masculine, feminine or neuter. The rules governing the gender of Latin nouns are not only complex, but so far in my past that I could not make any attempt to note them here. However the position is not quite as tough as it appears at first glimpse, as the form of the epithet usually indicates the gender of the generic name. The following examples show the forms assumed by some common adjectives to indicate gender.

Masculine	Feminine	Neuter
albus (white)	alba	album
viridis (green)	viridis	viride
vulgaris (common)	vulgaris	vulgare
altior (higher)	altior	altius

Possessive epithets always have endings that relate to the sex or number of the person or persons honoured -. In the case of a man the epithet ends in -i or -ii (baileyi, weinthalii, slateri, hartmannii). If the person being honoured is a woman the proper ending is -ae (elisae, hildae, bowkettae, kirkwoodae), and in the case of two or more persons, (as two brothers or man and wife) the ending would be -orum. Where a noun is used as a specific epithet it is equivalent to being in opposition and does not necessarily agree in gender with the generic name.

Order from Confusion. An Attempt To Describe The Modern System Of Plant Classification. (continued from page 34).

Usually if a generic name ends in -a it is feminine, those ending in -um are neuter and those ending in -us are masculine - Names ending in -us are the most likely variation from this rule as quite a lot of tree names, although feminine, end in -us (Quercus, Populus, Fagus, Pyrus).

THE ORGANISATION OF NOMENCLATURE.

Although the adoption of the binomial system developed by Linnaeus was practically universal the terrific growth of botanical study that was going on owing to the increase in world exploration made it impossible for botanists to avoid giving different names to the same plant or the same names to different plants. Apart from the fact that there were no published indexes and of course no such things as modern abstracting services, the terrific flood of new nomenclature was impossible to collate properly without some proper organisation. Botanists recognised the rule of prior publication but this was no help to a worker who was not aware that publication had occurred.

In the early years of the 19th century Augustin de Candolle (the DC so often seen in plant names)laid down a series of rules for names and many botanists adopted them (Theorie elementaire de la botanique 1813). In 1821 the first list of Latin names of all plants then known (Nomenclator botanicus) was published by Steudel, this was the first such list since the time of Linnaeus. However jealousies both personal and national complicated the problem as different countries and botanists continued to make rules to suit themselves. Alphonse de Candolle (A.DC) a Swiss, called for an assembly of botanists in 1867 and each was sent a copy of his work (Lois de la nomenclature botanique) which was studied for a few days and adopted with little revision.

The Americans, led by N.L. Britton the first director of the New York Botanical Garden adopted a set of rules based on the Paris Code which became known as the Rochester Code - In Vienna in 1905 the first truly international botanical congress was held and another attempt was made to get a set of standard rules - Most of the Americans refused to accept the Vienna Code and great perplexity was caused in America by the use of two codes.

Several congresses were held at five year intervals without any real result until the Congress at Cambridge in 1930 when determined and successful efforts were made to bring the differing factions to the same mind. Thus it was that in 1930 for the first time a code of nomenclature came into being that was international in function as well as name -. Those who read this will perhaps begin to understand why there have been so many changes in names of plants in recent years.

The rules of nomenclature are necessarily very complex and not of much interest to most of us, but an explanation of some of the rules of author citation may be of help. The person who first properly published the name of a species, genus or other taxonomic group is said to be the author of that group and in formal citations the author's name, (often abbreviated) is placed after the name of the group - (for example Cymbidium suave R.Br.). The names of well known authors are abbreviated for convenience and the better the author is known the more his name can be abbreviated (L = Linnaeus). At a later stage, with the Editor's permission I will give a list of authors associated with our orchids and the abbreviations used. If a name is proposed by one author and published by another the name of the latter is added, with the Latin preposition ex (from) as a connecting word. (Diuris abbreviata F. Muell. ex Benth., Caladenia clavigera Cunn. ex Lindl.,).

When a plant is transferred from one genus to another as in the transfer of Epipactus reflexa to the genus Chiloglottis the name of the first authors must be cited in parenthesis, hence - Chiloglottis reflexa (Labill) Druce. Also should a plant be changed in rank such as being changed from a species to a variety but retaining its previous epithet the same rule applies. This is illustrated by Dendrobium speciosum var. hillii (Hook.f.) F.M. Bailey, in this case the plant was named D. hillii by J.D. Hooker the son of W.J. Hooker and was reduced to varietal rank by F.M. Bailey in the Queensland Flora (1902).

Continued page 36.

Order From Confusion. An Attempt To Describe The Modern System Of Plant Classification. (continued from page 35).

When an authors work is published within another authors work the connecting word in is used. The example most familiar to us is Phaius tankervilliae (Banks in L'Herit.,) Blume, from this we learn that the original description of this plant was by Sir Joseph Banks and published in a work by Charles Louis L' Heritier de Brutelles of France. We also see that as the first part of the citation is in parentheses Banks did not place the plant in the genus Phaius, this was done by Blume, (Karl Ludwig Blume of Holland). To be continued in the next ORCHADIAN.

Eric Gordon, 263 Goulburn Street, Sydney. N.S.W.

MR. A.J. BURTON.
58 SKYE POINT ROAD.
CARY BAY. N.S.W.

MR. E. BAGNALL,
2 WILSON STREET,
MAYFIELD. 2N. N.S.W.

MR. B.M. BORGER,
41 TABLE STREET,
PORT MACQUARIE. N.S.W.

MR. S. COFFEY,
47 ANN STREET,
AITKENVALE. TOWNSVILLE. QLD.

MRS. P.M. CHAPMAN.
18 HARWOOD STREET,
MURWILLUMBAH. N.S.W.

MR. R. CURRELL,
15 DREMEDAY STREET,
NORTHMEAD. N.S.W.

DR. K. KIRKLAND,
B.M.A. HOUSE,
137 MACQUARIE STREET,
SYDNEY. N.S.W.

MR. G. LANE,
CASTLE STREET,
LAURIETON. 2C. N.S.W.

MR. J.A. MEAGHER.
BOX 19, P.O.,
FORBES. N.S.W.

MR. A.R. MONRO.
BARRINGTON,
VIA. GLOUCESTER. N.S.W.

MR. C.T. NAFTHALI (JNR.),
51 BANGAROO STREET,
NTH. BALGOWLAH. N.S.W.

MISS O. NIELSEN,
P.O. BOX 1,
TAREE. N.S.W.

MR. C.H. PRATTEN,
"KOOLEWONG",
BORENORE. N.S.W.

MRS. B. PITT,
52 TAUNTON ROAD,
HURSTVILLE. N.S.W.

MR. C.L. ROBY,
4 PALLAMANA PARADE,
BEVERLY HILLS. N.S.W.

MR. T.W. ROWNEY,
BOX HILL,
VIA. MORPETH. N.S.W.

MR. M.J. SLADE,
20 DOBIE STREET,
GRAFTON. N.S.W.

MR. J.W. WRIGLEY,
18 MT. IDA STREET,
EAST GORDON. N.S.W.

MR. J. WELLARD,
85 KING STREET,
GLOUCESTER. N.S.W.

THE QUEENSLAND ORCHID SOCIETY,
C/- HON. SEC. MR. F.M. OELKERS,
BOX 2002 X, G.P.O.,
BRISBANE. QLD.

MRS. V. McCABE,
107 FIFTH AVENUE,
BALMORAL. BRISBANE. QLD.

THE TOOWOOMBA ORCHID SOCIETY,
C/- HON. SEC. MISS E.H. MILES,
6 SOMME STREET,
TOOWOOMBA. QLD.

MISS S.L. HARVEY,
WILLIAM STREET,
BEECHWORTH. VIC.

MR. K. BURSILL,
4 OXLEY STREET,
CAMPBELLTOWN. N.S.W.

MR. L.R. BLOWER,
CURTIN STREET,
EAST MAITLAND. N.S.W.

MR. G. COWAN,
BLACKALL STREET,
ROCKHAMPTON. QLD.

MR. R.N. JEFFERS,
P.S. 1096,
NAMBOUR. QLD.

MR. A.R. FRIAR,
28 WILLIAM STREET,
SOUTH GRAFTON. N.S.W.

MR. D.J. LANGDALE,
22 WILKINS STREET,
YAGOONA. N.S.W.

ADDENDUM.

Due to unfortunate circumstances, several errors occured in THE ORCHADIAN number 2, the correct expressions are as follows;

Page 15, line 5..... D. Ellen (not D. ellen).
Page 15, line 25.... D. "Profusion" (not "profusion").
Page 15, line 28.... D. Bardo Rose (not D. bardo rose).
Page 15, line 33.... D. "Profusion" (not profusion).
Page 21, line 28.... D. gracillimum (not D. speciosum var. gracillimum)
Page 21, line 29.... Thrixspermum tridentatum (not Sarcanthus tridentatus)
Page 22, line 39.... Dendrobium kingianum (not Kingianum)

The Editor sincerely regrets the inconvenience caused & trusts that members will be in a position to correct their copies. The abovementioned errors may be corrected by cutting out the particular words & pasting them in the appropriate position in the text.

THE ORCHADIAN

February, 1964.

No. 4.

Published by the Australasian Native Orchid Society

Patron: Sir John Hall Best.
Vice-Presidents: Eric Gordon.
J.H. Scott.
Hon. Secretary: W.T. Upton.
Ass. Hon. Sec: S. Clemesha.

President: W.H. Murdoch.
Recordings: R. Curtis.
Publications: R. Kerr.
Orchadian: M.J. Corrigan.
Treasurer: J. Soiland.

Price: 2/-.

CORRESPONDENCE.
Editor: M.J. Corrigan, 13 Empire Street, Haberfield. N.S.W.
Hon.Sec: W.T. Upton, 5 Woorarra Avenue, Narrabeen Nth. N.S.W.

BRIEF ABSTRACTS FROM THE RUPP LETTERS TO G.W. ALTHOFER - 1945 - 1955.

I shall begin to reproduce in this issue, a series of abstracts from the correspondence of that great taxonomist, the late Rev. H.M.R. Rupp with G.W. Althofer. These abstracts have been made available by their editor Mr. C.K. Ingram. I should like to take this opportunity of thanking these two gentlemen for their kindness.

Brief Abstracts from the Rupp Letters to G.W. Althofer No. 1.

5-10-45: Prasophyllum gracile, Rogers. - Perfume like Boronia megastigma - very dainty - I am not satisfied with my description of this species in "Orchids of N.S.W.". For one thing, it should be "pale green", not yellowish-green. The species is rather rare in N.S.W. The lateral sepals are sometimes bidentate.

Brief Abstracts from the Rupp Letters to G.W. Althofer No. 2.

26-9-45: Thelymitra nuda R. Br. and T. pauciflora R. Br. - It is so difficult to distinguish between forms of these two that personally I think they might well be united: even in the typical forms there is little of importance separating them, except that T. pauciflora usually has a very large thick leaf.
8-10-45: Thelymitra nuda, - Sydney form inferior, and rarely seen with open flower.
19-9-46: Thelymitra pauciflora: - Rather a nuisance to botanists, for it is not only very variable both in colour and dimensions, but it comes in between T. aristata. Lindl. and T. longifolia Forst, and is not always easily distinguished. My chief mark of its identity is the leaf, which is nearly always disproportionately large and thick, ribbed longitudinally.

Brief Abstracts from the Rupp Letters to G.W. Althofer No. 3.

21-9-45: Diuris: There is much to be learnt about the genus Diuris yet. A strange point which seems to be emerging is that in some areas, natural hybrids appear to be produced so freely that definite specific determination becomes most difficult; yet in other areas hybrids are very rare, and the species are clear-cut. At Bullahdelah, Paterson and on the South Maitland coalfields, Diuris were plentiful, but only once or twice did I have any difficulty in identifying species: nor is there much difficulty about Sydney. On the other hand, around Launceston in Tasmania, the different forms are most puzzling: so also on the Blue Mts. Your district (C.W.) seems to belong to this category, too.

PUBLICATIONS.

Any articles pertaining to Australian native orchids, written by members and published in publications other than the ORCHADIAN, have not been reviewed by the Australasian Native Orchid Society and should not be construed as reflecting the opinion of the Australasian Native Orchid Society. Such articles being the free expression of an individual members views.

STH. YARRA, S.E.1, VIC.
10 OCT 1966

Registered at the G.P.O. Sydney for transmission by post as a periodical.

CULTIVATION OF NATIVE EPIPHYTIC ORCHIDS.

J. Falappi.

The Presidents recent tour of northern Queensland was highlighted by his visit to Mr. Joe Falappi of Ingham to view his comprehensive collection. Joe's knowledge is only equalled by his hospitality.
An invitation to contribute to the ORCHADIAN brought the following answer from Joe "I do not think I could be of much help". Fortunately he did not leave it at that and we quote "Outside of Dendrobium phalaenopsis and D. superbiens, I tie my natives onto Frangipani trees, or put them onto ti-tree or tree fern blocks, the Cymbidiums are placed in hollow logs with oak bark and bone meal. Dendrobium phalaenopsis I put into long shallow trays of tree fern and charcoal. The Dendrobium superbiens are put into pots with my standard mixture... tree fern and charcoal, or oak bark and charcoal.
I find that the mixture is most suitable for our climate. Most of the older growers use this also, as tree fern on its own gets too soggy in the wet season and rots the roots in no time. The same goes for peat. For any of the terrestrial orchids I use plenty of pumice stone, charcoal and leaf mould. My Bletias and Thunias are really thriving in this mixture.
Sarcochilus falcatus really moves along on a slab of tree fern, I put one plant in a 4" pot, with mixed tree fern and oak bark and another on a slab. They are both doing well, but there is no comparison. The roots of the potted one are just moving along the surface. The one on the slab has got a pup coming and the roots have gone all over the place, penetrating the slab. The growing tips are about 3/8" long".
Thanks Joe for the contribution, we can do with more of the same thing.

J. Falappi, Ingham. Queensland.

ORDER FROM CONFUSION. AN ATTEMPT TO DESCRIBE THE MODERN SYSTEM OF PLANT CLASSIFICATION. (Continued from THE ORCHADIAN No. 3)

Eric Gordon.

Banks actually included the plant in the genus Limodorum. (Tourn.) L. a genus which has only one saprophytic species having no chlorophyll, found in southern Europe. Of course like most things there are exceptions to the rules of botanical nomenclature and one important one in this case is the rule by which certain names are "conserved". Generally the earliest published name is the one to be accepted, but the Fifth International Botanical Congress in 1930 decided that certain generic names having a wide use would be "conserved" over names that had priority but were less well known and agreement was reached on a list of "nomina generica conservanda".
I mentioned earlier in this series that there were no indices or abstracting services in the early days of botanical nomenclature and I feel that I should mention the terrific job that has been done by British botanists in seventy years - It was in 1893 that the most comprehensive list of seed plants that has yet been published began to appear -
This is the Index Kewensis plantarum phanerogamarum inspired by Charles Darwin and made possible by a gift to the Royal Botanic Gardens at Kew through his friend Joseph Dalton Hooker (Hook.f.). Under the direction of Hooker, Benjamin Dayton Jackson (1846 - 1927) and a staff of assistants carried out the vast amount of clerical work. Under each generic name was given, in alphabetic order every specific epithet known to have been published for a member of that genus together with the author, the date of publication and the country of origin. About 375,000 entries were included. Ten supplements were published by 1947 each covering the work of a five year period, an eleventh was published in 1953 covering all literature published up to 1950. This is the world standard work that is used by all plant taxonomists today.
I conclude this series with the hope that I have been able to help those who did not know and that I have not been caught out in too many errors by those who do know. If any member who would like any information on any subject in these articles cares to write to the Editor, I will try to give him the information he wants through the pages of the ORCHADIAN.

Eric Gordon, 263 Goulburn Street, Sydney. N.S.W.

EPIPHYTIC ORCHIDS AND FERTILISING - A CHALLENGE ANSWERED.

G.A. Paterson.

Our President's prejudice against fertilisers is already well known and in accepting his challenge I must say quite definitely that I do not agree with him. While I have too many interests both within and without the horticultural world to claim to be an expert in any section. I have grown native orchids for about twenty years; and through S.G.A.P. I have been encouraging the study of our epiphytes and have letters from all types of growers from the just-interested beginners to old hands who are experimenting with cultural methods and hybridising.

These letters range geographically from Rockhampton, Qld., to Tasmania. And the accumulated evidence from these growers and from my own experience is that suitable fertilisers vastly improve epiphytic and other native orchids.

The champion orchid at one of our local orchid shows, before they substituted champion cymbidium, was a Dendrodium gracilicaule which on 36 pseudobulbs carried 83 racemes.

A fair sampling of the racemes averaged just under 40 florets, and that plant I had fed regularly with a common commercial liquid fertiliser.

My letters and the beginners collections I have seen tell me that the commonest method of killing native epiphytes is not by fertilising, but by failure to observe their natural habits of growth and trying to turn them into pot plants, with roots that are normally surface feeders buried in compost or even in heavy soil. There is no doubt that suitable culture is the first essential, and that it is possible to grow epiphytes without manure; but my correspondents who are growing them successfully consistently report the regular use of liquid fertilisers, ranging from liquid cow manure to commercial chemical products. All would agree with Mr. Murdoch that where other factors are correct, fertilising can add something. And the best collections I have seen are regularly and intelligently fertilised.

That damage has been done with fertilisers proves nothing. I severely damaged my Anthuriums by using a preparation which produced excellent results with other genera. I experimented with staghorns (Platycerium grande) and found the optimum dosage by steadily increasing it, with different plants, until I killed one.

From my correspondence it appears that beginners are afraid of fertilisers rather than too lavish with them, and I am of the opinion that more orchids languish for lack of food than die of indigestion.

G.A. Paterson, 50 Mildura St., Coffs Harbour Jetty. N.S.W.

SILK STOCKINGS AND ORCHIDS.

Eric Gordon.

To most people the only relation between silk stockings and orchids is the cost - However there is no doubt that the silk stocking is one of the most useful things a native orchid grower can possess - A silk stocking can be used to tie on the heaviest or the most delicate of orchids by cutting it into suitable strips. That root that persists in growing into the air can be brought back into place with a strip say an inch and a half wide without any danger of damaging the growing tip or those pseudobulbs which are so difficult to fasten with nylon line etc. can easily be fastened with a wider strip. The strip of stocking when spread out will allow air and moisture to penetrate and makes a fine mesh net which holds the plant firmly. I find the simplest method of cutting up a stocking is to cut the foot and top off first. Then cut the leg into two or more pieces according to the length you need to go round your piece of Melaleuca limb or what have you. Then roll the piece up like a garter, cut it through and then cut off pieces of the width you want. When you unroll these pieces you will have pieces of the length you originally selected and of the width you decided on when cutting up the "garter". The tops can be used to make very strong ties for heavier work -

E.G. Gordon, 263 Goulburn Street, Sydney. N.S.W.

Brief Abstracts from the Rupp Letters to G.W. Althofer. No. 4.

31-10-45: Prasophyllum brevilabre Hook f. - Widely distributed throughout eastern N.S.W., Vic., Tas., and S.A. Extremely variable in dimensions, but only slightly variable in the flowers. Sometimes a robust plant up to 18" high, often slender and no more than 6".

PRASOPHYLLUM ELATUM R. Br.

L. Cady.

History: This species was first introduced to science by the eminent botanist Robert Brown in his Prodromus Florae Novae Hollandiae (1810) from a type specimen collected by Brown "in the vicinity of the colony of Port Jackson".

Description: P. elatum R. Br. BROWN PRODR. (1810) 318; BENTH.FL.AUSTR. VI(1873)337; FITZG.AUSTR.ORCHIDS II,i, (1884); RUPP ORCH.N.S.W.(1943)26; ERICKSON ORCH.OF THE WEST (1951)57; ROGERS in BLACKS, FL.SOUTH.(reprint 1960 of Pt.I)220.

SYN. PRASOPHYLLUM AUSTRALE LINDL.GEN.ET SP.ORCH.(1840)514;HOOK.f.FL. TASM.II(1860)10, not of Brown's.

A slender or particularly robust plant up to 185cm. high. Leaf lamina variable in length often exceeding the spike. Stem variable in colour from black through brown to pale greenish. Spike dense or loose, many flowered, 10-30cm. long. Flowers sessile, moderately large, varying in colour from almost black to yellowish green, ovaries long and slender. Dorsal sepal up to 11cm. long, broadly ovate; lateral sepals connate to a varied degree from partly to completely. Petals lanceolate-acute, shorter than the sepals. Labellum up to 10mm. long, not gibbous at base, gently recurving from approximately the centre, the anterior half with undulate margins; callus large and prominent extending beyond the bend, its membranous margins somewhat crenulate.

Anther as high as the rostellum. Column wings long, falcate, with a small but variable basal lobe. Stigma prominent.

DISTRIBUTION: Found usually in damp swampy areas or open forest in or on the edge of soaks. It occurs in all states of Australia.

FLOWERING PERIOD: August to November in the colder states.

REMARKS: The above species is one of the commonest Prasophyllums in Australia and because of its wide distribution we find it is an extremely variable plant, the colour scheme of this species is commented on by Dr. Rogers in the Proc. of the Roy. Soc. S. Austr. (Vol.xxxiii 1909, 209 III. Plate viii) as below Quote "all shades of colour are to be met with in the flowers, from a pale green to a dark purple or almost black. The latter colour prevails in the Kangaroo Island variety, known locally as "Blackboy". "unquote.

The connate lateral sepals can at times be found free, this occasionally occurs in hot dry weather.

In the Victorian Nat. Vol.65 April 1949, 270 W.H. Nicholls named a variety muellerii but as far as the writer can ascertain the plant so named is still regarded as a valid species, and thus should still be regarded as Prasophyllum muellerii Andrews, it differs from Prasophyllum elatum by a claw at the base of the labellum.

L. Cady, P.O. 88, Kiama. N.S.W.

RECORDING A NATURAL HYBRID - Dendrobium toftii X Dendrobium undulatum.

There must be few more magnificent orchids than a hybrid Dendrobium toftii F.M. Bail. X Dendrobium undulatum R. Br.. Recently (6 - 8 - 63) the author was given a few flowers of what is possibly this cross, from a plant in cultivation near Mossman, North Queensland. The plant was collected by Mr. Dudley Kingston between the Daintree River and Cape Tribulation several years ago. Continued efforts since then, on behalf of that collector and a number of other competent collectors, to locate further plants, have proven fruitless.

Mr. Kingston's plant continues to flourish in cultivation and is now a sizeable specimen with canes (pseudobulbs) in the vicinity of 1.5 m. tall, with the general appearance of those of Dendrobium undulatum but flattening & somewhat darkening in the manner of Dendrobium toftii towards the apex. This year the plant flowered with 15 racemes approximately 30 - 40 cm. long, each containing 26 - 30 flowers. The flowers open well, but the petals are inclined to be a little lax. When first open, there is a suffusion of yellow in the flower, but this quickly fades until, except at the base of the labellum, the whole flower is a dusted pale mauve. Veining is indistinct on the sepals and petals but pronounced on the labellum. A drawing of J.E. Jones' hybrid, Dendrobium Peter Peterson is included for comparison. This flower has more rigid petals, retains a yellowish suffusion through the mauve and has somewhat darker and less distinctly veined lateral lobes of the labellum and a mid-lobe of the labellum which is entirely dark mauve.

A.W. Dockrill, 11 Balzer Close, Edge Hill, Cairns. Nth. Qld.

KEY TO PLATES:

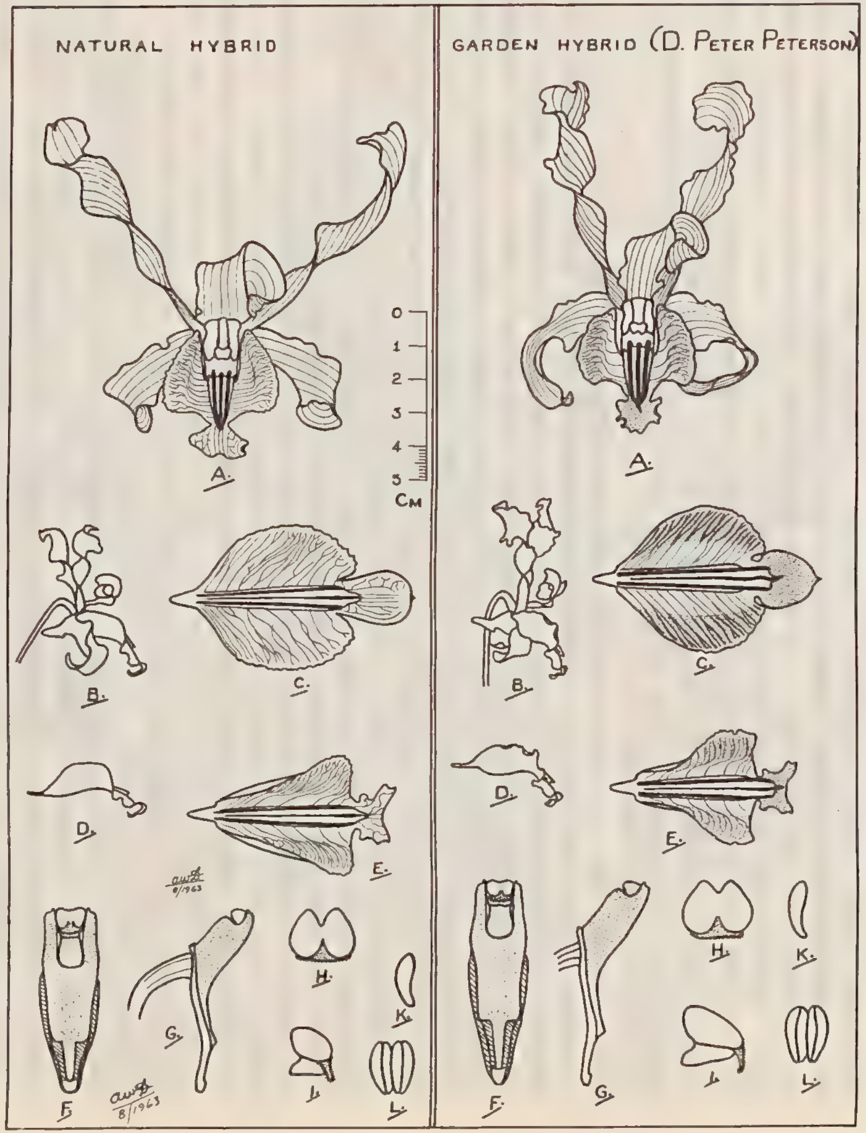
D. toftii F.M. Bail. X D. undulatum R. Br.

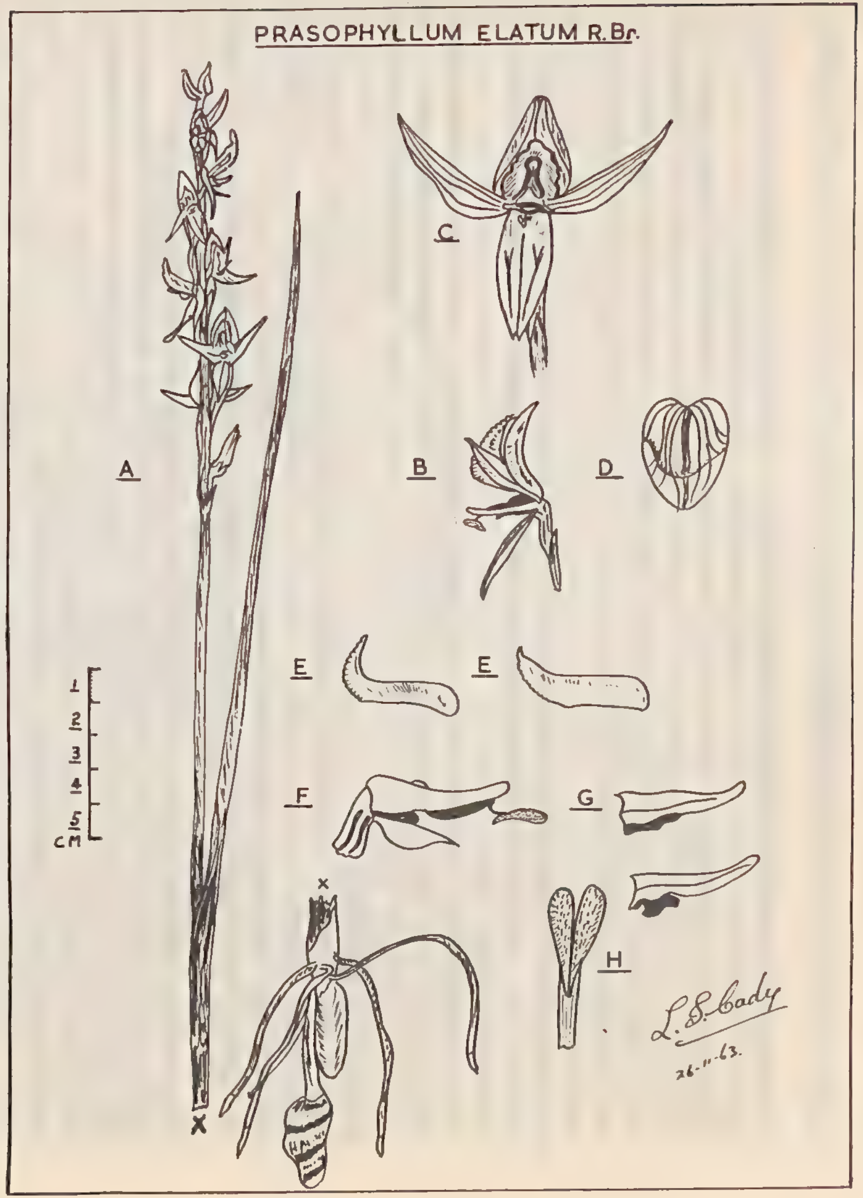
- A. Flower from the front......to scale X2
- B. Flower from the side........to scale
- C. Labellum flattened out.....to scale X2
- D. Labellum from the side.....to scale
- E. Labellum from above........to scale X2
- F. Column from the front......to scale X3
- G. Column from the side.......to scale X3
- H. Anther from above..........to scale X7
- I. Anther from the side.......to scale X7
- K. Pollinium from the side....to scale X10
- L. Pollinia from the front....to scale X10

Prasophyllum elatum R. Br.

- A. Plant natural size.........to scale
- B. Flower side................to scale X2½
- C. Flower front...............to scale X4
- D. Labellum flattened out top.
- E. Labellum side showing variation in reflexing.
- F. Column side................to scale X8
- G. Column wings with variation in lower lobe.
- H. Pollinia...................to scale X40.

Dendrobium toftii F.M.Bail. X D.undulatum R.Br.




PRASOPHYLLUM ELATUM R.Br.

A Day In The Life Of An Orchid Lover.

F. Coate.

I have been spending long evenings lately, sorting and framing colour slides, and what a wealth of happy memories they bring.

Days spent wandering in the bush, arriving home scratched, weary and footsore, but almost always with something new to photograph and press.

Last September a trip to Katanning, one hundred and fifty miles away, was a delight only marred by the necessity of reaching our destination before dark.

I could have spent days instead of hours on the trip. This was the season for terrestrial orchids and they were there in plenty, by roadside and bush.

Most outstanding was the tall Caladenia patersonii, usually growing in sandy soil but not distaining gravelly hillsides. These inland ones have much wider filaments than the ones I have found around this coastal strip near Bunbury.

Inland too, grows a smaller creamy yellow variety with maroon tipped labellum. Swamp lovers these. While further south there is a delightful all yellow variety, almost as large as the white ones.

The loveliest form of Caladenia patersonii is var. longicauda, with long, narrow, dark tipped petals and sepals.

They cross and re-cross so much between themselves and Caladenia pectinata, that it is difficult for the layman to tell which is which. The crosses are particularly lovely. Some are deep pink, with a dark labellum, others white with dark maroon tip to the labellum, one in particular has a lovely wine purple labellum.

A particularly beautiful type grows near a swamp I know. Standing two feet and over, with long dark filaments. One of these I measured last year was thirteen inches from tip to tip, and the stem as brought to me was thirty one inches long. An extra large one, and with two blooms at that. What a field for the hybridist!

We stopped for morning tea beside a swamp, where Caladenia patersonii were just beginning to bloom. Here were two lovely spikes of Lyperanthus serratus, with their long beaked hoods and peculiar habit of rattling when shaken.

Right beside the car grew yellow and brown Diuris longifolia.

I crossed the road, mug in hand and scrambled up the gravelly bank to inspect a large patch of these, on lifting my eyes I caught sight of a group of Caladenia macrostylis, then more and more. There were dozens of the quaint small orchids. They look like small gnomes leaping with outspread arms and legs, their bearded labellums glistening.

Never before had I found them in such profusion. In our area they are rather scarce. They seem to prefer gravelly soil and shun the sand. They grow here beneath a huge Marri gum in company with Caladenia flava and all around were budding stems of lovely Thelymitra crinata.

On again for many miles to stop once more on a sandy slope with a dense swampy thicket at the bottom. Still Marri country, not a very interesting looking spot, but it was good to stretch our legs for a few minutes.

What a variety of orchids grew on that small spot, formed into a triangle by three roads. There were many plants of Caladenia hirta still in bud. Budding Caladenia filamentosa, their dark hairy filaments still pulled up into a "pony tail".

Large flowers of brown Pterostylis vittata hid between logs and around stumps, keeping them company were the tall Pterostylis recurva, green and white striped - and lovely small flowered Caladenia longiclavata, yellow and maroon, hiding in almost every bush.

Under the trees grew thick clumps of Caladenia unita, there must have been hundreds. To the list I added Drakea fitzgeraldii, several late specimens of Caladenia deformis. Leaves in plenty of Lyperanthus nigricans and L. leptocerus, but no buds. These two need fire to flower. Diuris were also seen and probably many more I have forgotten.

One was left wondering if perhaps some orchid lover had helped create this spot. Some day I hope to stop there again and explore more fully.

Again we stopped, near a marshy creek. Here in season flower Helichysum davenportii. The tiny seedlings were there but we were hunting orchids. This was a favourite haunt of Caladenia filamentosa, mainly the dark red variety with red and white striped labellum. Some creamy ones were present, but none of the yellow variety. Caladenia filamentosa is a swamp lover and they stood there among tall "Black boys".

continued on page 43.

A Day In The Life Of An Orchid Lover. Continued.

Glossodia emarginata grew here also, their rather harsh pink as glossy as the newest enamels.
Caladenia gemmata was almost finished but must have been lovely a week before.
Lower, in the swamp grew tall, yellow Diuris, their small flowers swaying above Microtis with their tiny green flowers. Further along the creek were large pansy flowered Diuris and up the farther bank a few Caladenia patersonii. A lovely spot, once a watering spot for travellers. The old well and the remains of a dam are still there.
But now my husband issued the usual edict. "No more stops or we won't be there tonight", and so we gathered speed and tried to make up for lost time, my head swivelling like a marionette, "oh, what was that"! and "there's another"!
We travelled home by a different route, making a wide detour by back roads. This was new country and we made many fruitless stops before our first find, and what a find!
A dismal looking spot. Battered jam trees, short stubby grass and white clayish sand, but I caught a glimpse of hundreds of goldy-brown Diuris longifolia, and white and pink Caladenia hirta. Then, a new one to me, what excitement, my first Caladenia dilatata. Several, widely spaced, leading me to a fallen jam tree, and there, among the decaying branches a great mass of this lovely orchid. Funny how we cannot resist counting! Thirty eight there were, in a patch a few yards square and many more nearby. Creamy-green petals and sepals with a wide band of maroon down the centre. The sepals queerly bent upwards. The dorsal sepal, thrust upward and forward. The lovely creamy-green labellum tipped with maroon, with a band of yellow separating the two colours. The edges deeply fringed and swaying to the least movement.
I was showing a flower to a friend who lives in the area where they grow. "Oh yes," she said, "when we were kids we called them "Bobbity bibs"". What a delightfully apt name I thought, as a gentle shake sent the fringed "bibs" dancing.
The next discovery was in similar country, white sandy-clay, a thin sprinkling of scraggy trees and one huge Marri.
This was a tea break again and I walked thermos in hand to an old white log, and then tea was forgotten as I fell to my knees beside the quaintest little orchid I'd ever seen. A short, wide, un-fringed labellum, with a band of thick, short calli down the centre. The dark red striped sepals with blunt ends turned out to make feet. The petals stretched outward and rolled at the tips for hands. These were Caladenia roei and they grew in dense clumps of up to eighteen blooms, one to a stem, about ten inches high, some were green with dark maroon stripes on the sepals and petals, with green labellum. Others had dark red petals and yellowish red labellum, others again seemed a blend of the two.
We wandered delightedly from clump to clump, calling to each other to "come and see these". There must have been hundreds of blooms and we only looked in that one spot. The swampy patch stretched away across a field.
Growing just as thickly among the Caladenia roei were similar clumps of Caladenia filamentosa var. tentaculata, with a few of the red and cream variety. Their filaments all tangled together, so thick were the clumps. Perhaps it was the season, but I have never since found Caladenia roei in such clumps. They have usually been single plants even where growing profusely. Farther inland they seem to favour she-oak thickets where they push through a thick cover of fallen needles.
We made two more finds that day, both on a rocky hillside where jam trees grow thickly, their long golden catkins clothing the trees with splendour.
The ground a pink sheet of Helichysum davenportii, among which crept the pale, violet-like blooms of Pelargonium havlasae, which has the peculiar habit of increasing by underground root stocks and dies back each year to a tuber-like root.

continued on page 44.

A Day In The Life Of An Orchid Lover. Continued.

As I stepped from the car I almost trod on the tall stem of another green orchid. One I had not previously met with, Caladenia integra - very like C. dilatata except for the fact that the labellum was unfringed and I think, of a lovelier green, like un-ripe apples. They grow much taller than Caladenia dilatata. There were a few blooms open and many buds on tall stems which I guess would also be Caladenia integra. Many other members of the Caladenia family grew here among the Helichysum davenportii and golden jam wood, but none lovelier than the dark yellow Caladenia filamentosa var. tentaculata.

I wandered some distance and was climbing a slope among boulders where rock fern crept between rocks and she-oaks. Sturdy little Pterostylis nana grew thickly in the black leaf mould along with the fern. I was admiring their quaint little pixie-like flowers when I turned a huge boulder and stopped with a gasp. "Oh lovely, lovely!" and again I was on my knees. The vivid yellow blooms of Caladenia filamentosa var. tentaculata shone like stars above the rich black soil.

The dark tipped stiffly outstretched petals were a much deeper yellow than any I had seen before. This variety do not have the drooping segments of the others, but stand erect as if starched. There were twenty three blooms in a spot about four feet long by two feet wide. They only stood about seven inches high, but the flowers were quite large. I was thankful that the boulder stood between them and the road, only half a chain away.

I hope they are still there among the fern. Some day I will look again and even if the blooms are gone, the dried stems will give mute promise of beauty for another spring.

Mrs. F. Coate, 14 Ecclestone St., Bunbury. W.A.

Readers will, of course realise that Mrs. Coate would not be in a position to supply any of the abovementioned orchids to members. EDITOR.

Notes and Records of Some Australian Orchids.

L. Cady.

In the Western Austr. Nat. Vol.8 No 2 Oct. 1961 pp.38-41, A.S. George reduces 5 Western Australian species to synonymy, they are as follows:

1 Prasophyllum paludosum Nicholls: this plant is now reduced to syn. of Prasophyllum muellerii Andrews, a brief comparison of the two is given.

2 Prasophyllum horburyanum Rupp now reduced to syn. of Prasophyllum fusco-viride Reader. therefore giving the latter species a distribution as follows - Western Australia, South Australia, Victoria and N.S.W.

3 Pterostylis turfosa Endl.: Mr. George has found that this species is really the true Pterostylis barbata Lindl. as the type plant was collected in Western Australia, "the type locality for Pterostylis barbata is Swan River, leg. J. Drummond" so if it is found that the eastern states plant is specifically different then it is at present an unnamed plant.

4 Caladenia tenuis Fitzg. syn. under Caladenia hirta Lindl. it was found that in a comparison between the two species only the labellum calli separated the two and the number of rows of calli is an extremely variable point in Caladenia and could hardly be used to separate two species.

5 Caladenia purdieana Andrews. syn. under Caladenia paniculata Fitzg. a misunderstanding of the original description has been the cause of the retention of this species.

The status of Rogers Goadbyella gracilis is discussed and illustrated.

In W. Austr. Nat. Vol. 9 No 1 Sept. 1963 pp. 3-9. The Western Australian species of Glossodia have been named under a new genus. ELYTHRANTHERA (Endl.) A.S. George this genus is now as follows

1 E. brunonis (Endl.) A.S. George
Syn. Glossodia brunonis Endl. Nov. Stirp. Dec. 16 (1839); Caladenia brunonis (Endl.) Reichb. Beitr. 67 (1871):

2 E. emarginata (Lindl.) A.S. George.
Syn. Glossodia emarginata Lindl. Gen. et Sp. Orch. 424 (1840): Caladenia emarginata (Lindl.) Reichb. Beitr. 67. (1871): Glossodia intermedia Fitzg. Gard. Chron. 462 (1882).

L. Cady, P.O. Box 88, Kiama. N.S.W.

THE INTERNATIONAL CODE OF BOTANICAL NOMENCLATURE.

Eric Gordon.

The International Bureau for Plant Taxonomy and Nomenclature is the final result of the many efforts to secure unanimity in Botanical Nomenclature and it publishes the International Code of Botanical Nomenclature together with the International Code of Nomenclature for Cultivated Plants, the latest issues being dated 1961.

There are many sections of these works which are only of interest to the botanist who wishes to publish names for new genera but there are some that are of general interest and I propose to discuss some of them-

We have probably all seen the word holotype used in connection with botanical names without being definitely aware of its meaning in this connection.

All botanical names for genera and species are determined by means of nomenclatural types; that is the constituent element of a taxon (botanical category) to which the name is permanently attached whether correct or a synonym. This is not necessarily the typical or most representative element of a taxon but is merely the specimen to which the name is permanently attached - These specimens may have various histories and certain names are used to define these as follows.

HOLOTYPE is the one specimen used by the author or designated by him as the nomenclatural type. As long as the holotype is extant it automatically fixes the application of the name concerned. It is therefore incorrect to refer to a living plant as the holotype. If an author did not indicate an holotype or it has been lost or destroyed, a lectotype or neotype may be designated as a substitute. A lectotype always takes precedence over a neotype. If in existence and isotype must be the lectotype, if there is no isotype the lectotype comes from a syntype if existing. If neither isotype or syntype exist or none at all of the original material exists a neotype may be selected.

LECTOTYPE is a specimen or other element selected from original material to serve as a nomenclatural type when no holotype was designated at the time of publication or as long as it is missing.

ISOTYPE is a duplicate of the holotype (part of a single gathering by a single collector). It is always a specimen.

SYNTYPE is any one of two or more specimens cited by an author when no holotype was designated or any one of two or more specimens simultaneously designated as types.

NEOTYPE is a specimen or other element selected as a nomenclatural type when all original material is missing.

Recommendation 73C of the Code recommends that where the specific epithet is from the name of a man ending in a vowel a single "i" shall be added except where the vowel is "a" when an "e" should be added. Names ending in a consonant should have a double "i" added except where the ending "er" when only a single "i" is added.

Recommendation 73F of the Code recommends that specific epithets should be written with a small initial letter although there is nothing in the Code that forbids an author to use capital letters should he so desire, if the epithets are derived directly from the names of persons (whether actual or mythical) or are vernacular or non-latin names or are former generic names.

Article 17 of the International Code of Nomenclature for Cultivated Plants 1961 states;

A cultivar name when immediately following or preceding a botanical or common name, must be distinguished clearly from the latter either by placing the letters c.v. before the cultivar name, or by enclosing within single quotation marks. Double quotation marks must not be used. Capital initial letters must be used for all words of a cultivar name.

E.G. Gordon, 263 Goulburn Street, Sydney. N.S.W.

Brief Abstracts from the Rupp Letters to G.W. Althofer. No. 5.

11-8-45: Acianthus fornicatus R. Br.: Hasn't been recorded south of Clyde River - has a wide distribution North of Clyde, suggesting its capacity to accommodate itself to very different climatic conditions. I think yours is the "farthest west" record, but I have it from high country near Barraba and Tamworth. On the coast it is the commonest orchid often.

Acianthus exsertus is often associated with it and it extends to southern states freely.

How To Prepare An Herbarium.

R. Curtis.

A herbarium is the term applied to a collection of preserved plants. Many rare species have been collected and preserved in herbariums, and in fact have provided proof of their existence until their re-discovery. The majority of native orchid experts agree that a herbarium can be of invaluable assistance in the study of native orchids. Many species flower for only short periods and are quite often found in remote, almost inaccessible places, some are difficult to raise out of their natural environment and so some method of preservation is necessary. Normal methods of preservation are drying or storage in a preserving medium such as alcohol. I propose to review three methods of dry preservation in this article.

The first and simplest method consists of placing the cleaned, freshly collected plants between sheets of absorbent paper which in turn are placed between two flat surfaces, the whole being subjected to moderate pressure, a load of books, weights or clamps can all be used satisfactorily. A refinement of this is a press that can be constructed from two flat boards hinged at one end and clamped together by bolts or wood working clamps at the opposite end.

Arrangement of the plant and flowers in such a way as to expose as much of the plant in flat form as possible is necessary. In cases where the contorted shape of the specimen prevents flat pressing, dissection of the plant into pieces, more easily handled, should be carried out.

The absorbent paper should be changed regularly during the pressing process particularly if the plant is fleshy.

The above method has a disadvantage in that the specimens loose their natural colours after a period of time.

Another method that preserves most of the colours is that of ironing. Here the specimen is placed between sheets of absorbent paper (blotting paper) and ironed flat and dry using a fairly hot iron. The plants should be moved about frequently during this process to prevent sticking to the paper. This method has the advantage of drying the specimen fairly quickly.

A third method of dry preservation is that mentioned in the book, "Orchids of Europe" by A. Duperrex. In this process the fresh plant is placed in a container (suitable tin) containing burning sulphur, the tin is then sealed tight, the sulphur extinguishing itself when all the oxygen is used up. The specimen is left in the atmosphere of sulphur dioxide for approximately ten minutes, whereupon it is removed and pressed flat, using the first method mentioned. Plants treated in the above manner are black at first but on standing they return to their original colours, retaining these almost indefinately. The author claims that this method is the most successful of all for the preservation of the natural colours of orchids.

A certain amount of experimentation is necessary to develop the correct technique of pressing plants, so do not be disappointed if first efforts are not a complete success. Specimens should be affixed to stiff sheets of paper by means of small pieces of glued paper or a non yellowing glue, each being labelled with the plant name, where found, by whom and the date collected. It is also an idea to note down who identified the specimen, this can be quite important when dealing with a species that tends to have colour or form variations.

I should like to mention at this point that a total of twenty five recordings have been received by the Australasian Native Orchid Society, although no herbarium specimens have been received. If any member has discovered specimens in an area, in which the particular species has not previously been recorded, please let us have your recordings accompanied if possible with a herbarium specimen. This also applies to unknown plants as from a description and herbarium specimen it is possible to identify the specimen.

Your recordings should be sent to the address below.

R.J. Curtis, 11 Tudar Road, Sutherland. N.S.W.

Readers are reminded that all material appearing in THE ORCHADIAN under the names of A.W. Dockrill and L.I. Cady is copyright and may not be reproduced without the permission of these gentlemen.........EDITOR.

DENDROBIUM CUCUMERINUM - THE AMAZING GHERKIN ORCHID. Alex. D. Hawkes.

The following article, which appeared in "The Orchid Weekly" will be of great interest to members, it shows just what an American orchid lover thinks of one of our more unusual native epiphytic orchids. The author has many orchid books to his credit and is also the Editor of "The Orchid Journal" and "The Orchid Weekly".

Some time ago my good friend Hermon Slade, noted orchidist of Australia, kindly sent me some plants of a most extraordinary dwarf epiphytic Dendrobium, knowing of my particular interest in this genus. Among these were several specimens of the remarkable Gherkin Orchid, Dendrobium cucumerinum (den-droe-bee-um koo-koo-me-rye-num), a plant so rare in cultivation (at least outside of its native haunts) that I had not even included it in the initial manuscript of my Manual of the Cultivated Orchids!

These plants quickly sent out myriad heavy dull-white roots on the tree-fern cubes I attached them to, and just as I write this (May 3rd) the first one has expanded its flowers. Though I have a considerable number of peculiar orchids in my personal collection here in Coconut Grove, I must say that this little Dendrobium must rank high among the true oddities -- not only in its flowers, but also in its vegetative structure.

Imagine, if you will, a number of small prickly cucumber pickles, matte green in colour, slightly more than an inch long (and 3/8" in diameter, on the average), set at casual intervals along a stout little olive-green, yellowish-flushed, red-brown-ringed rhizome. No pseudobulbs are present, and at first glance one can scarcely believe that it is a living plant, and not some prank played by an overly-avid orchidist!

The inflorescence is very short, in my specimen considerably less than an inch; it is heavily clothed with papery, semi-transparent dull-coloured bracts, and bears four flowers -- which opened within a two-hour period as I watched them last evening. Measured from bottom to top, and discounting the curley-cues of the segments, these blossoms are slightly more than 5/8" long.

If someone were to design the ideal flower for this incredible plant of "gherkins", then these would be sheer perfection!

The sepals and petals of Dendrobium cucumerinum are narrow and conspicuously recurved in their apical halves; the broad-based lateral sepals are first undulate, then have their apical parts extending inward toward the lip like tiny claws. They form a blunt, distinctly 2-lobed mentum, much like a spur, at the end of the flower. These segments are all, in my specimen, an odd green-white, with slender branching very dark red streaks near their bases,these lines also being present on the outer surfaces. The lip is three-lobed, with the small lateral lobes embracing the stout broad whitish column, which is again marked with this very dark red shade. The underside of the lip is striped with dull almost wine-red, and the flaring, down-curved, very crisped and frilly midlobe is white with a central cluster of very crisped (and very beautiful) tiny magenta keels, with scattered magenta dots and blotches extending outwards toward the side margins.

The late Rev. H.M.R. Rupp, in his admirable work on the Orchids of New South Wales (1943), notes the flowers as yellowish-white or greenish-white, striate with red, but this certainly does not do their intricacy justice! The species, Dendrobium cucumerinum, is an old one, having been described as long ago as 1842 by Macleay. It is known in many areas of New South Wales, and extends into Queensland, growing apparently always on trees of various sorts.

The Gherkin Orchid is an incredible species, one which I feel sure almost everyone would enjoy having in his collection -- if only for its curious appearance, whether in bloom or not. But as yet it is excessively rare in cultivation, and I know of no commercial source for it outside of Australia. I might remark, in closing these comments, that the flowers give off a perfectly foul odour during the warm hours of the day! But even this cannot possibly detract from its unique charm.

Note: Reprinted, by permission, from The Orchid Weekly 4: 219-220. 1963.

Alex D. Hawkes, The Horticultural Publications, P.O. Box 435, Coconut
Grove 33, Florida. U.S.A.

JUDGING STANDARDS FOR NATIVE ORCHIDS.

W.H. Murdoch.

Judging standards for our native orchids do not exist, to the confusion of exhibitors and judges alike.

The whole question presents many problems, all of which cannot be envisaged at this stage. This presupposes constant review of our requirements.

We invite our readers, who care to contribute their suggestions, to get busy. Remember, we have only nine months before the spring shows are with us again. Not only must the standards be published, but those who are to do the judging must have time to familiarise themselves with them, and more important still, with the plants they may be called on to judge.

A few ideas are suggested for your guidance;

1. The normal shape of the flowers should be adhered to.
2. Plants freshly gathered for show purposes, be penalised.
3. Size of plant, in itself, be not considered a virtue. Exhibits have been shown that required a utility to transport them.

Obviously many other suggestions may be forthcoming, and all will be considered by your committee.

Your support in this matter is most earnestly requested.

W.H. Murdoch, Robey Road, Coal Point. 2N. N.S.W.

MR. C.C. SCOTT,
182 BRIGHTON AVENUE,
TORONTO. 2N. N.S.W.

MRS. E.H. DAVIS,
C/- MISS O'CONNOR,
NICOL STREET,
YARRAM. VIC.

MR. B. HALL,
MANAGER, PORT MACQUARIE
GOLF CLUB,
PORT MACQUARIE. N.S.W.

DR. L.A. COMMINS,
495 OXFORD STREET,
PADDINGTON. N.S.W.

MR. K. HUBNER,
127 ELY STREET,
REVESBY. N.S.W.

MRS. L. ANDREWS,
12 WENTWORTH STREET,
PARRAMATTA. N.S.W.

MRS. C. COLEMAN,
P.O. BOX 7,
CHESTER HILL. N.S.W.

MR. P.L. GRANT,
P.O. BOX 123,
OAKEY. QLD.

MR. J. ROBINSON,
53 CUMBERLAND STREET,
CABRAMATTA. N.S.W.

MR. P.H. COLMAN,
12 WETHERILL STREET,
NARRABEEN. N.S.W.

MR. R.R. PREUSS,
P.O. BOX 33,
EDITHBURGH. S.A.

MR. E.G. ROSEWOOD,
51 JOHNSTON CRESCENT,
LANE COVE. N.S.W.

MR. L.E. CHAMPION,
179 LONGUEVILL ROAD,
LANE COVE. N.S.W.

MISS A. THOMSON,
7 CONDON STREET,
ROSEWATER GARDENS. S.A.

MRS. B.M. CRUICKSHANK,
45 GLENEIRA STREET,
WOODVILLE. S.A.

MR. A.L. HARGRAVE,
13 BRYNMAWR ROAD,
CAMBERWELL. VIC.

NORTHERN RIVERS ORCHID SOCIETY,
C/- MR. W.R. HUDSON,
16 JACARANDA AVENUE,
LISMORE. N.S.W.

REFERENCE BOOKS AVAILABLE

Orchids of the West, by Rica Erickson. Published by Paterson Brokensha Pty. Ltd., 65 Murray St., Perth. W.A. 25/-. 2 copies available from Dymocks Sydney. Covers the orchids of W.A. with text & colour drawings.

A Handbook to Plants in Victoria, vol. 1, Ferns, Conifers and Monocotyledons. by J.H. Willis. Melb. University Press. 45/-. Copies known to be available from Angus & Robertsons, Sydney and Sewards, Melbourne.

Handbook of the Vascular Plants of the Sydney District and Blue Mountains. by N.C.W. Beadle, D.Sc., O.D. Evans, B.Sc., R.C. Carolin, B.Sc. £3 -10 - 0. Available from Prof. N.C.W. Beadle, University of New England, Armidale. N.S.W.

Orchids of Australia, by W.H. Nicholls. To comprise 25 parts of which Parts 1,2,3 & 4 are available to date. 24 superb colour illustrations and botanical description in each part. Limited to 1,000 copies. Parts 1,2,3 at £7 - 10 - 0 each. Part 4 at £9 - 0 -0. Sewards Pty. Ltd. Melbourne.

Members will realise that this is merely a list of reference books known to be available. Mention of publications from time to time should not be interpreted as indicating the societys approval of these books. It is up to the individual to decide whether a particular work is suitable for his requirements.

EDITOR.

THE ORCHADIAN

April, 1964.
No. 5.

Published by the Australasian Native Orchid Society

Patron: Sir John Hall Best.
Vice-Presidents: Eric Gordon.
J.H. Scott.
Hon. Secretary: W.T. Upton.
Ass. Hon. Sec: S. Clemesha.
President: W.H. Murdoch.
Recordings: R. Curtis.
Publications: R. Kerr.
Orchadian: M.J. Corrigan.
Treasurer: J Soiland.

Price: 2/-.

CORRESPONDENCE.
Editor: M.J. Corrigan, 13 Empire Street Haberfield. N.S.W.
Hon.Sec: W.T. Upton, 5 Woorarra Avenue, Narrabeen Nth. N.S.W.

SYDNEY BRANCH GROUP MEETINGS.

Sydney Branch meetings have been held each month despite some uncertainty regarding permanence of the meeting place due to high cost of rental The Group Committee has been working hard on this problem and has now found a hall which is cheaper in rental, and more easily reached by public transport. Meetings are as follows;
June 12th. and July 10th Railway Institute, Small Hall, Cnr. Chalmers and Devonshire Streets, City. Members are urged to make every endeavour to attend these meetings and to bring as many specimens as possible.
Remember - June 12th. and July 10th., at 8pm.

ADJUSTMENTS TO NOMENCLATURE.

Eric Gordon.

The following adjustments have been made in the names of 3 Australian native orchids;

1. *Cymbidium iridifolium* A. Cunn. is now a synonym for *Cymbidium madidum* Lindl.
2. *Calanthe veratrifolia* R. Br. is now a synonym for *Calanthe triplicata* (Willem.) Ames.
3. Rupp in Orchids of N.S.W. lists *Spiranthes sinensis* (Pers.) Ames and the recently published Handbook of the Vascular Plants of the Sydney District and Blue Mountains, by Beadle, Evans and Carolin lists *Spiranthes lancea (Thunb. ex Sw.) Backer, R.C. Bakh et Steenis*. J.H. Willis states that the change to *Spiranthes lancea* has been proved to be erroneous and Kew Herbarium states "Whether *Spiranthes lancea* is the correct name for the plants formerly called *Spiranthes australis* Lindl. and later *Spiranthes sinensis* (Pers.) Ames, depends firstly on whether there is *only one species* ranging from Japan and the Himalayas to Australia and, secondly on the correct identity of *Ophrys lancea* Thunb. ex Sw. Only examination of the holotype can clean up the second question and the first will have to await the attentions of a monographer of the genus *Spiranthes*. For the moment the practice at Kew is to use the name *Spiranthes sinensis* as being less in question."
4. Alex D. Hawkes states "I noted with interest that *Dendrobium fusiforme* F.M. Bail., a native of Australia and New Guinea, is a homonym of *D. fusiforme* Thou., and hence requires a new name. I therefore wish to propose the following new epithet for the Australian - New Guinea plant: *Dendrobium ruppianum* A.D. Hawkes, nom nov. (*Dendrobium fusiforme* F.M. Bail. in Proc. Linn. Soc. N.S.Wales 2: 277. 1878, not Thouars, 1822. *Dendrobium speciosum* Smith *var. fusiforme* F.M. Bail. Syn. Queensl. Fl. 509. 1889.)"

Eric Gordon, 263 Goulburn Street, Sydney. N.S.W.

STH. YARRA, S.E.1, VIC.
10 OCT 1966

DENDROBIUM DELICATUM AND DENDROBIUM KESTEVENII.

Editor.

For the interest of members, I am reproducing a comparison made by the Rev. H.M.R. Rupp between Dendrobium delicatum and Dendrobium kestevenii. This comparison also formed part of a paper which appeared in The Queensland Naturalist, March, 1935, p. 63., which may be read in most capital city libraries.
In this paper, Rev. H.M.R. Rupp discussed both orchids and came to the conclusion that they were two distinct species.

D. delicatum;	D. kestevenii;
Stems pale, fairly numerous, slender except for the lowest third, fluted.	Stems darker green, very numerous and crowded, robust but narrowing near the top, fluted.
Dimensions of longest stem measures; Length; 36 cm. Dia; near base, 2½ cm. halfway, 11 cm. near top, 10 cm.	Length; 23½ cm. Dia; near base, 2½ cm. halfway, 20 mm. near top, 10 mm.
Leaves longer and relatively narrower (longest measured, 19½ X 3½ cm.), hardly recurved, dull.	Longest leaf measured, 17 X 4 cm. Leaves recurved, moderately glossy.
Axis of raceme rather dark green, weak and drooping with weight of flowers, the longest one seen 24 cm.	Axis of raceme very pale, strong and erect, the longest 30 cm. (This measurement is not uncommon).
First flower of plant in cultivation 1934, opened Sept. 13.	First flower under exactly similar conditions, 1934, opened Aug. 28.
Buds deeply suffused with purplish-red, the colour becoming lighter as the flowers mature, but not disappearing.	Buds often delicately tinted pink, the colour disappearing as the flowers mature, except sometimes on the petals.
Number of flowers observed on racemes 7 to 14.	Number of flowers 6 to 23.
Flowers slightly smaller, segments broader but more acute.	
Disc of labellum with 3 longitudinal plates united for almost their whole length, to the point of lobation of the labellum. There the 2 outer ones end in abruptly outcurved points, the median one dropping suddenly to the level of the labellum and continued along the mid-lobe.	Disc of labellum with 3 similar plates which gradually sink to the level of the labellum and fuse along the mid-lobe.
Mid-lobe of labellum very broad, only slightly concave above, its margins very minutely serrulate.	Mid-lobe very concave above, margins not serrulate.
Stigma oval.	Stigma narrowing upwards.

Brief Abstracts from the Rupp Letters to G. W. Althofer No. 6.

3 - 5 - 52: Pterostylis daintreana F. Muell ex Benth. : This greenhood was for many years supposed to be absolutely restricted to the vicinity of Port Jackson. Then in 1937 Dr. Ledward got it on the Macpherson Ra., and the Gemmells from Stanthorpe (Q.) Evidently it has a much wider distribution than was thought. Rylstone must be easily the farthest west record.

SARCOCHILUS AUSTRALIS (Lindl.) Reichb. f.

S. Clemesha.

While at Coffs Harbour recently, Mr. Len Archer told me that he had seen plants of what he suspected was *Sarcochilus australis* from Glen Innes, this being a considerable distance north of Paterson and Gloucester, the previous northern records.

The discoverer, Mr. White of Glen Innes, subsequently sent me an excellent colour photo of the plant, stating that he was almost certain it was *Sarcochilus australis*. It proved to be identical with the form of this species growing near Sydney, even in minor colour details.

The conditions under which the plant grew are most interesting and can best be described by quoting Mr. White's letter; "The locality where it is found is in the Gibraltar Range E.N.E. of Glen Innes. It is growing on Myrtles along the bank of a small creek at an elevation of about 3,000 ft. Associated species are *Sarcochilus hillii*, *Rhinerrhiza divitiflora* and *Dendrobium gracilicaule*.

The climate of the creek would be very mild, due to the high elevation and because the creek falls into a large gorge within ½ mile, which would drain off the cold air. The plants were flowering in mid-December and while not plentiful, were certainly not rare."

A preserved specimen has been sent to the Sydney National Herbarium by Mr. White. I studied the specimens of *Sarcochilus australis* in the Brisbane Herbarium and though they are in poor condition, I was able to see that they are either *Sarcochilus dilatatus* or a small *Sarcochilus olivaceus*. Others may have been *Sarcochilus spathulatus*, though in my opinion most were *Sarcochilus dilatatus* none were *Sarcochilus australis*. Mr. White has my congratulations for this new interesting record.

S.C. Clemesha, 3 Consett Street, Concord West. N.S.W.

THE ORCHIDS OF NORTHERN N.S.W.

L. W. Archer.

A list of Australian native orchids found by the author between the Macleay River and the Queensland border.

Dendrobium aemulum, *D. beckleri*, *D. cucumerinum*, *D. delicatum*, *D. falcorostrum*, *D. gracillimum*, *D. gracilicaule*, *D. kingianum*, *D. linguiforme*, *D. mortii*, *D. monophyllum*, *D. pugioniforme*, *D. schneiderae*, *D. speciosum*, *D. speciosum var. hillii*, *D. tenuissimum*, *D. tetragonum*, *D. teretifolium*, *D. teretifolium var. fairfaxii*, *D. teretifolium var. aureum*.

Natural hybrids; *Dendrobium pugioniforme X Dendrobium tenuissimum*.
Dendrobium kingianum X Dendrobium gracilicaule.

Peristeranthus hillii. *Sarcanthus beckleri*, *S. purpuratus*. *Thrixspermum tridentatum*, *Cymbidium canaliculatum*, *C. iridifolium*, *C. suave*. *Bulbophyllum aurantiacum*, *B. bracteatum*, *B. elisae*, *B. crassulifolium*, *B. exiguum*, *B. weinthalii*, *B. minutissimum*. *Geodorum pictum*. *Taeniophyllum muelleri*. *Sarcochilus falcatus*, *S. weinthalii*, *S. olivaceus*, *S. hillii*, *S. spathulatus*, *S. fitzgeraldii*, *S. fitzgeraldii var. aemulus*, *S. ceciliae*. *Rhinerrhiza divitiflora*. *Phaius australis*, *P. tankervilliae*. *Dipodium punctatum*. *Calanthe triplicata*. *Liparis coelogynoides*, *L. habenarina*, *L. reflexa*, *L. simmondsii*. *Oberonia muelleriana*, *O. titania*. *Spiculaea irritablis*. *Caleana major*. *Chiloglottis reflexa*, *C. formicifera*, *C. gunnii*. *Diuris aurea*, *D. abbreviata*, *D. sulphurea*, *D. punctata*. *Microtis oblonga*, *M. unifolia*. *Prasophyllum archeri*, *P. anomalum*, *P. brevilabre*, *P. fimbriatum*, *P. odoratum*. *Spiranthes sinensis*. *Pterostylis baptistii*, *P. coccinea*, *P. curta*, *P. cycnocephala*, *P. daintreana*, *P. decurva*, *P. grandiflora*, *P. hildae*, *P. longifolia*, *P. nutans*, *P. obtusa*, *P. ophioglossa*, *P. parviflora*, *P. pedunculata*, *P. pusilla*, *P. woolsii*. *Corybas aconitiflorus*, *C. fimbriatus*, *C. pruinosus*. *Cryptostylis erecta*, *C. subulata*. *Thelymitra aristata*, *T. ixiodes*. *Gastrodia sesamoides*. *Galeola cassythoides*, *G. foliata*. *Acianthus caudatus*, *A. exsertus*, *A. fornicatus*, *A. reniformis*.

Caladenia alba, *C. alba var. picta*, *C. carnea*, *C. carnea var. gigantea*, *C. cucullata*, *C. fitzgeraldii*. *Calochilus campestris*, *C. grandiflorus*, *C. paludosus*, *C. robertsonii*. *Eriochilus cucullatus*. *Glossodia major*, *G. minor*. *Lyperanthus suaveolens*.

L. W. Archer, 31 Azalea Avenue, Coffs Harbour. N.S.W.

A NEW STATUS FOR A NORTH QUEENSLAND DENDROBIUM (ORCHIDACEAE).

A.W. Dockrill & S.C. Clemesha.

DENDROBIUM RACEMOSUM (NICH.) CLEMESHA ET DOCK. STAT. NOV.
SYN.:- D. BECKLERI F. MUELL. VAR. RACEMOSUM NICH., NTH. QLD. NAT. 4: No. 45, p. 35 (June 1936).

Dissatisfaction with Nicholl's treatment of this plant has been privately expressed by a number of persons, and indeed the morphology of its flowers more closely resembles that of *Dendrobium teretifolium* R. Br. than of *Dendrobium beckleri*. As far as is known by the present authors, the legitimate transfer to species rank has not been undertaken and the present paper is to effect that transfer. A comparison of the plant under discussion, with *Dendrobium beckleri*, will follow and this, in turn, followed by a description of *Dendrobium racemosum* as a species.

COMPARISON OF DENDROBIUM RACEMOSUM WITH DENDROBIUM BECKLERI.

D. racemosum	*D. beckleri*
PLANT:- (refer to description in this paper). Plant with the same general characteristics as those of *D. beckleri* but more robust in all its parts.	
INFLORESCENCE:- racemose	Not racemose, never more than 3-flowered, usually 1 or 2.
PERIANTH SEGMENTS:- tapering from the base to the apex, so that they are longer and appear more slender than those of *D. beckleri*.	narrow-oblong, shortly acuminate.
LABELLUM:- LATERAL LOBES:- obliquely subcrescentic, the free anterior portion short, little more than semicircular or obtuse. MID-LOBE:- averaging about 11 X 3mm. when flattened, narrow-ovate, tapering to a long filiform point about 7mm. long; margins of the dilated portion with numerous small undulations. DISC:- with 3 rather high longitudinal ridges which are sinuate in their apical third and extend about half way along mid-lobe.	LATERAL LOBES:- constricted about the middle; free anterior portion oblong, acute. MID-LOBE:- averaging about 7 X 5 or 6mm. when flattened, deltoid with a long narrow-cuneate point about 3mm. long; margins of dilated portion with only a few large undulations. DISC:- subsimilar to that of *D. racemosum*, but this ridge arrangement is common to most members of the section of the genus to which these 2 species belong.
ANTHER:- slightly constricted near its apex.	not constricted
POLLINIA:- about 0.8mm. long, slightly dilated about the middle when viewed from the front.	about 1.4mm. long, not dilated about the middle when viewed from the front.

DESCRIPTION OF DENDROBIUM RACEMOSUM.

A moderately large epiphyte, which sometimes grows on rocks, consisting of a tuft of a few erect, (semi-pendulous in older plants) branched stems 25 - 100 cm. long, with leaves terminal on the branches of the stem. Roots numerous, branching, about 0.5 - 1.0mm. diam. Stems swollen into small pseudobulbs at the very base, thence contracting to about 4 - 5mm. diam; branches becoming progressively thinner towards the apex where they are frequently no more than 1mm. diam. Leaves erect, those at the base 10 - 20 X 0.7 - 1.1cm., rigid, terete, sulcate, progressively decreasing in size and depth of grooving towards the apex of the stem until those at the apex as small as 3 X 0.4cm. Racemes, from the node at the base of the leaves near the apex of the stem, 5 - 7cm. long, containing 8 - 15 flowers on filiform pedicels about 15mm. long. Flowers "reversed", 23 - 30mm. diam., usually dingy cream with the column and anther mauve; perianth segments curving outwards from about the middle. Dorsal sepal 14 - 18 X 1.5 - 2.0mm., more or less tapering from the base to the apex.

continued on page 54.

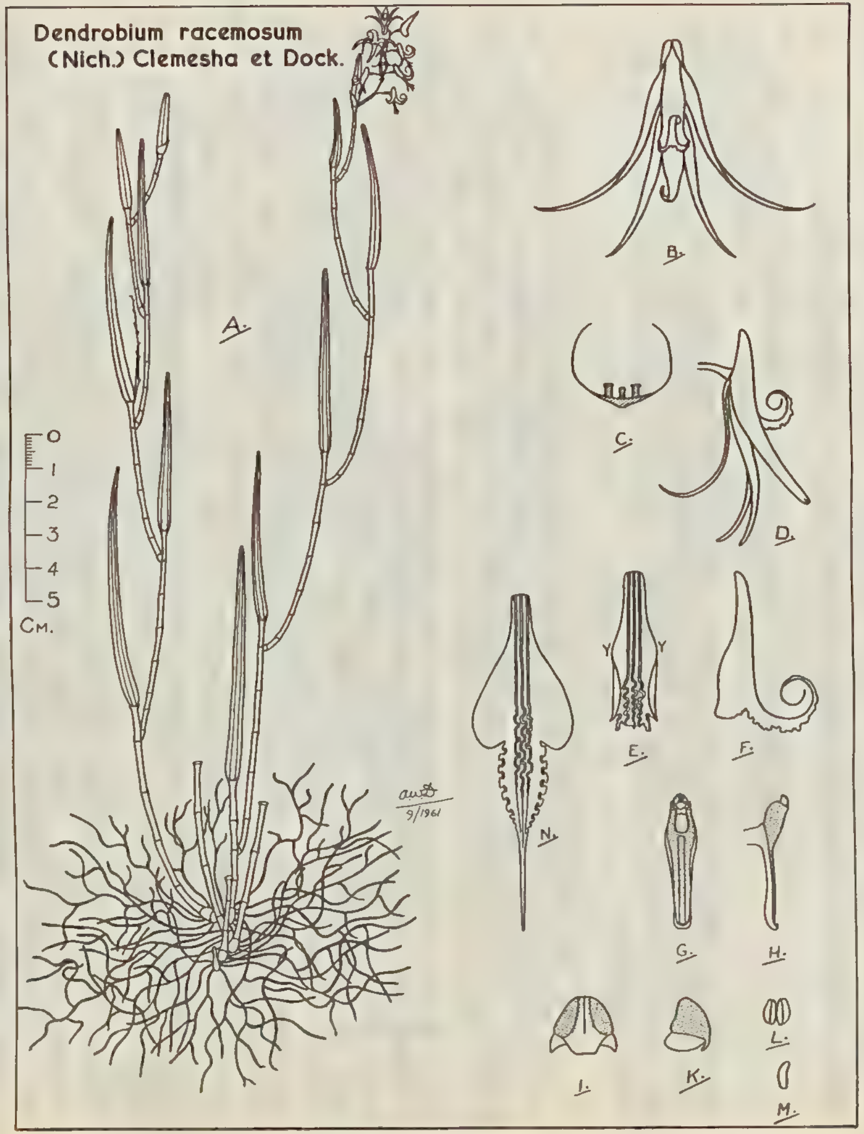
KEY TO PLATES:

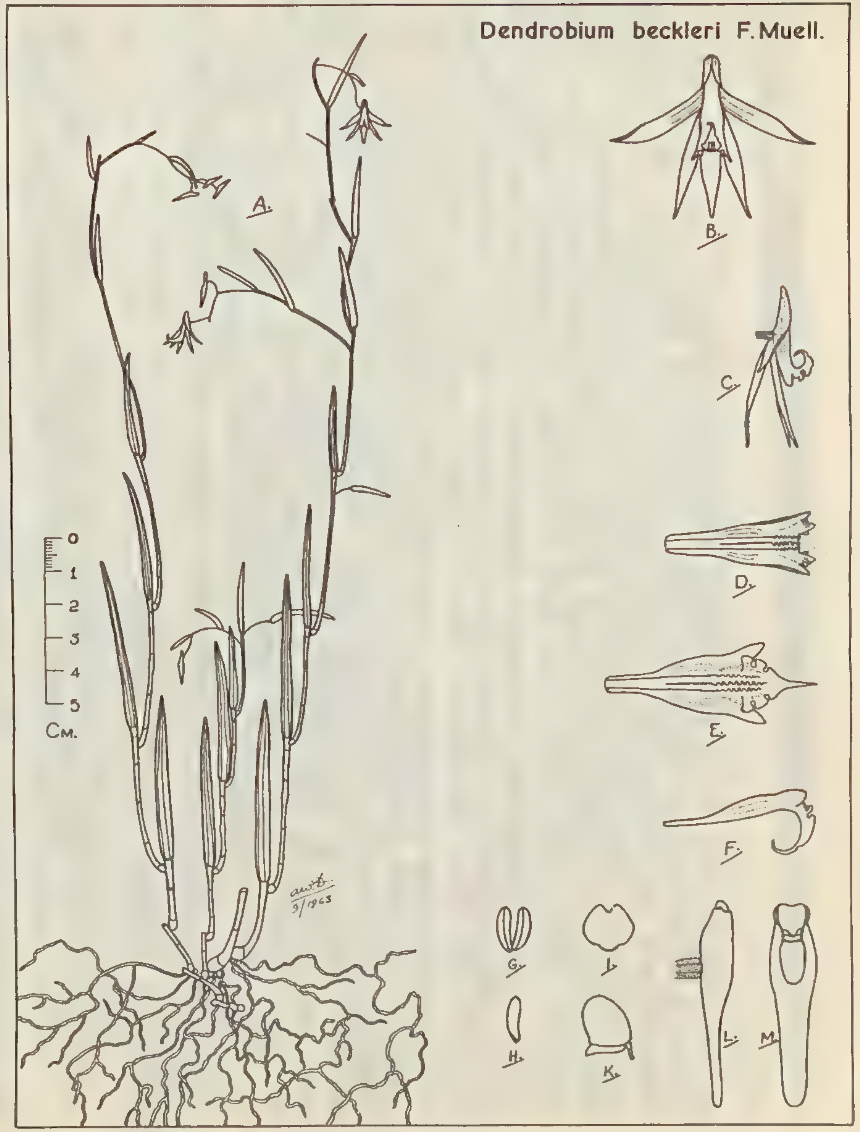
D. racemosum (NICH.) CLEMESHA ET DOCK.

A. Portion of plant to ½ indicated scale
B. Flower from the front X3
C. Cross section of labellum at Y-Y ... X10
D. Flower from the side X3
E. Labellum from above X5
F. Labellum from the side X5
G. Column from the front X5
H. Column from the side X5
I. Anther from the front X20
K. Anther from the side X20
L. Pollinia from the front X10
M. Pollinium from the side X10
N. Labellum flattened out X5

D. beckleri F. MUELL.

A. Plant .... to scale X½
B. Flower from the front X2
C. Flower from the side X2
D. Labellum from above X3
E. Labellum flattened out X3
F. Labellum from the side X3
G. Pollinia from the front X10
H. Pollinium from the side X10
I. Anther from above X10
K. Anther from the side X10
L. Column from the side X5
M. Column from the front X5


Dendrobium racemosum
(Nich.) Clemesha et Dock.


Dendrobium beckleri F.Muell.

A New Status for a North Queensland Dendrobium (Orchidaceae).

Continued from page 52.

Lateral sepals 22 - 25 X about 2mm., similar in shape to the dorsal one, joined at the rear in the basal fifth or sixth to form with the base of the labellum and the column-foot a spur which is oblong-truncate when viewed from the front, but narrow triangular when viewed from the side.
Petals similar in length and shape to the dorsal sepal but a little narrower.
Labellum about 18-21 X 5 - 6mm. when flattened, trilobate; lateral lobes erect, column embracing, obliquely subcrescentic, the free anterior portion short, semicircular or obtuse; mid-lobe rather sharply decurved through about 90° from the disc, its lamina about 5 X 3mm., ovate with numerous small undulations along the margins, and with a long filiform curled apex about 6 - 7mm. long, when straightened out; disc with 3 slender raised parallel longitudinal ridges which extend half way along the lamina of the mid-lobe and are sinuate in their apical third. Column about 3 X 2mm. with a foot about 5mm. long, in line with it. Stigma suboblong. Anther slightly constricted near the apex when viewed from the side; rostrum short, truncate. Pollinia slightly dilated about the middle when viewed from the front.
DISTRIBUTION:- North Queensland, the Atherton and Evelyn Plateaux and the lower Russell River.
FLOWERING PERIOD:- Usually September - October.

A.W. Dockrill, 11 Balzer Close, Edge Hill. Cairns. Nth. Qld.
S.C. Clemesha, 3 Consett Street, Concord West. N.S.W.

Brief Abstracts from the Rupp Letters to G. W. Althofer No. 7.

15 - 11 - 50: Diuris punctata - one of the most variable of the many variable spp. I tried to fit them into D. cuneata, but they won't go - the petals are so very different. The flowering period of D. punctata ranges from Sept. to late Nov., in different localities. The length of the lateral sepals varies very much. In all its varieties, this is a lovely species.

21 - 11 - 50: During the past 40 odd years I have tried frequently to separate it into several spp., but I have never succeeded. The type form is a large lilac flower with dark spots all over the segments. Sir J. E. Smith gives a coloured plate of it in his "Exotic Botany" 1804. Most of us, including so great an orchidologist as the late Dr. Rogers, laughed at this plate, and considered that the name was a misnomer, as there were no spots except (in some forms) inconspicuous ones along the edge of the labellum. But a few years ago Alick Dockrill discovered Smith's type near Campbelltown, spots and all. Probably Smith's plant did come from that area, as it was one of the earliest to be settled. But although we must, by international rules, accept Smith's as the type, this peculiar form which happened to come into his hands, is certainly not typical; in fact, it seems doubtful whether it occurs anywhere except at Campbelltown. It is very difficult to say what *is* the typical form.
(Rupp collected it from 18 localities - Vic., Blacktown, Macleay R., Guyra, Qld., etc. - and there were 14 different forms).
The differences, however, cannot wipe out the agreement in the relation of the lateral labellum lobes to the mid-lobe, and the common characteristics of the column. To me the most astonishing form was McKie's Guyra form with bright yellow flowers. And this curious anomaly was the only N.S.W. form I have seen with the Iris perfume which was characteristic of the western Victorian form.

SARCOCHILUS WEINTHALII Bail.

G.A. Patterson.

Short note referring to Brief Abstract No. 3, Vol. 3, p. 27.
I was surprised at this item, as Sarcochilus weinthalii is not by any means as rare as this extract states. It is found in several areas in the eastern Dorrigo and, shortly before his death, I had the pleasure of taking a plant, which Mr. Archer and I found in that area, to the late Mr. F. Weinthal.

G.A. Patterson, 50 Mildura St., Coffs Harbour Jetty. N.S.W.

THE ASSOCIATION OF DENDROBIUM KINGIANUM AND THELYMITRA ARISTATA.

Fred Fordham.

I made a few interesting orchid discoveries on the far north coast of N.S.W., whilst living at Brunswick Heads. The one that stands out in my memory, and proved of great value to me, was the finding of Dendrobium kingianum and Thelymitra aristata growing together in perfect harmony. When I say that this discovery proved of great value to me, I mean just that, for with it, began a friendship with the late Rev. H.M.R. Rupp that lasted until his death.

In August, 1931, I heard of "clumps of red orchids that sood out like rubies on the rock face" of a seventy foot cliff, near Wilsons Creek, some distance from Brunswick Heads.

This stream flows for many miles through the immensely rich country, that, in early days of settlement, was known as the Big Scrub. It joins with Leycester Creek at Lismore to form the North Arm of the Richmond River. This, in turn, flows into the Richmond River at Coraki.

Wilsons Creek has a weir across it, a few miles from its source, to provide hydro power for the generators that produce electricity for Mullumbimby and district.

It was some miles above this weir that I crossed the stream, and made my way south towards the cliffs, that looked down on to a lovely valley that owed its origin and development to this stream. After a stiff climb, I came to the base of the seventy foot cliff. The ruby red orchids were there all right, away up near the top. They were indeed beautiful. Heavy climbing brought me to the top and I was able to gather a few plants. They were strong, well grown specimens of Dendrobium kingianum with the deepest red flowers imaginable. May I digress here a moment. The plants that I gathered, flowered at Brunswick Heads for many seasons. Instead of producing those rich, red flowers, they handed out crops of white blossoms with labella slightly marked with pink. I was bitterly disappointed.

Having packed my treasures in my bag, I moved westward along the ridge, ever on the look-out for orchids. None came my way. The country was apparently devoid of them. Tiring of this non productive search, I was about to retrace my steps, when I became aware of a faint perfume on the breeze. Moving into it, I found the perfume becoming stronger. It was unfamiliar. Soon I sighted an outcrop of rock, quite flat, about eighteen inches above the surrounding ground. This was completely covered with, what appeared to be, at a distance, a carpet of Dendrobium kingianum.

The perfume was all wrong, for Dendrobium kingianum did not at any time dispense such an aroma. A closer inspection revealed another orchid growing, and flowering amongst the D. kingianum. This proved to be a Thelymitra. It was new to me. Had I known the genus better I could have pinpointed it as Thelymitra aristata by the perfume.

The flowers of the two orchids made a perfect mat of dark pink blossoms. At first, it was difficult to distinguish the genera by the flowers. They were so similar.

The tubers of the Thelymitra were large and full. They were embedded in the roots of the Dendrobium kingianum. No soil was present. Where their nourishment came from I had no idea. I scouted round and found several more colonies, though not as large as the first I had observed.

This, to me, was a remarkable discovery. Here was an epiphyte and a terrestrial, growing together on rock, in perfect physical condition. Was the terrestrial trying to become an epiphyte? Was the latter doing its best to get to ground and emulate the terrestrial? Had they a common fungus feeding them?

These questions arose in my mind, and I could not answer them. I pondered them all the way home, and arrived there with no solutions to my problems.

I wrote the N.S.W. Herbarium people and told my story, seeking information. Their reply came promptly. The Thelymitra was classified as Thelymitra longifolia; whilst the association of the epiphyte and the terrestrial was written off as accidental.

Now, I could not question the Thelymitra longifolia; but I was not satisfied with the "accidental" verdict. I had always been led to believe that Nature does not approve of accidents. So, here I was, as far as ever from a solution to my problems.

continued on page 56.

The Association of Dendrobium Kingianum and Thelymitra Aristata.

Continued.

In desperation I decided to write to Rev. H.M.R. Rupp, whose "Guide to the Orchids of N.S.W." was my one and only text book on the subject. At that time, he was Rector of St. Mary's, Weston.

I hesitated somewhat before posting my queries to him. Would he think me presumptuous in approaching him? Would he consider my questions unworthy of his attention? Would he be too busy with church affairs to devote even a few minutes to me? And so questions arose in my mind. Of course I could not answer them. So I posted the letter.

I need not have hesitated. His reply came within a few days; friendly, sympathetic, and helpful.

I have it before me now, and shall share with you relevant extracts.

23-10-31

"I should certainly not dismiss the association as "accidental", however, without taking pains to be sure that that was not a camouflage for "I don't know". As you are probably aware many orchids, both epiphytic and terrestrial, in their root systems, live in symbiotic relationship with certain minute, thread-like fungi. It is possible - of course, this is mere theory, - that the Thelymitra and the Dendrobium have "adopted" the same fungus, in which case we might expect, at least occasionally, to find them in association. I think this is more probable than that, there is anything in the substance of the Dendrob itself, which is congenial to the Thelymitra, or vice versa.

Assume that Den. kingianum is in symbiotic relationship with Th. longifolia, and seeds of the latter, if carried by the wind to a suitable colony of the former, might easily germinate and grow there. Such a theory might well be tested, before dismissing the occurrence as "accidental"."

Nothing dogmatic about that! This attitude of Rupp's was further demonstrated in the closing paragraph of his letter. "I should like to see a specimen or two of the Thelymitra, though I suppose they are all over now. I have only found Th. longifolia in sandy scrub or open forest".

I feel that he already doubted the Herbarium's Thelymitra longifolia!

As H.M.R.R. surmised, the Thelymitra flowers were past caring. I had to wait until August, 1932, before I could send him the desired specimens. He was then relieving the Rector at Pilliga.

"The Thelymitras reached me this morning", he wrote on 10th Sept., 1932." The three lower flowers were not so good; but two of the buds expanded perfectly, ten minutes after I put the specimens in water on the verandah. I do not think it is Th. longifolia. The V - shaped notch in column - hood is far too deep. Moreover, the hood is yellowish in front, dark brown behind; the front part only darkening as the flower withers. In Th. longifolia there is only a slight cleft in the hood, and the front is very dark. The form and colouring of your flower, both agree with Thelymitra aristata Lindl., and as soon as the buds expanded, they were sweetly scented, a characteristic of Th. aristata; whereas Th. longifolia has no perfume.

I think, therefore, that we must class it under the former, and not the latter species."

His closing paragraph of this letter, too, is worthy of interest. He wrote, "It is, however, very distinct from the type: and its habit suggests an effort in plant mimicry. The flaccid stem is unlike the rigid stem of the type; and the raceme, when well in amongst those of Den. kingianum, must, I imagine, bear considerable resemblance to them."

In August, 1936, H.M.R.R. spent a few days with my wife, my family and me at Brunswick Heads. I took him, with others, to a new ground at the head of Cooper's Creek, a tributary of Wilson's Creek, a few miles south-west of my original find. There on the slopes of Mt. Jerusalem, we found dozens of small colonies of the two Orchids growing together in perfect harmony.

One small colony caught H.M.R.R's eye. It consisted of a small Dendrobium kingianum of four pseudobulbs, and a single Thelymitra aristata. He considered it for a few moments, and turning to me remarked, "They are certainly good friends, Fordham. Dendrobium kingianum and Thelymitra aristata! who'd have thought it?"

And so my questions of 1931 had been answered, and I had found a wonderful friend.

F. Fordham, 198 Jessie St., Armidale. N.S.W.

CULTIVATION OF NATIVE EPIPHYTIC ORCHIDS.

A. Rothwell.

I experienced the problem of an unstable medium until I tried agricultural drainage pipe. One end of the pipe is plugged with cement and the other end may be drilled so that it may be hung. At first I left a drain hole in the plug, but later discontinued the practice. It is advisable to let the pipes weather before attaching plants to clear off combustion products. The pipes retain a considerable amount of water from rain and hosing. First I tried staghorns (Platycerium grande) and birds nest ferns (Asplenium nidus) which thrived and the orchids with the following results.

Watering is daily in the growing period and as necessary in the off season. No fertilisers have been used. All are suspended, except for Dendrobium speciosum, under tree cover with a southerly aspect. In each case the plant was attached with plastic covered copper wire and without any addition as a reservoir. All except Dendrobium linguiforme are now without binding. I think most Sarcochilus would also be successful with this technique.

Dendrobium linguiforme - 4 years - Diffident about extending roots onto the pipe, some plants taking three or four years to do so and some are still not attached, although the same plants previously grew successfully onto other media. All plants however, continued to grow and most plants flowered each year. Although in natural conditions this species grows most commonly on sandstone, I have not been able to get it to attach successfully to sandstone, although I have tried for ten years to do so.

Dendrobium pugioniforme - 4 years - The plants were in a dying condition when placed on the pipe, having been left without cover by clearing operations and do not yet look as healthy as in their natural state. They attached readily to the pipe and now have vigorous root growth and made new growth and flowers sparsely each year.

Dendrobium striolatum - 4 years - This was a short stemmed form from a dry eucalyptus forest It rooted freely onto the pipe and has grown vigorously, developing into the long stemmed form typical of rain forest. It has flowered freely each year.

Dendrobium striolatum - 3 years - This large stemmed rain forest form rooted freely and has made new growth and flowered freely each year.

Dendrobium teretifolium - 4 years - Rooted vigorously onto pipe and has made new growth and flowered each year.

Dendrobium beckleri - 3 years - Rooted freely on the pipe and has made new growth and flowered sparsely each year.

Dendrobium speciosum - 4 years - These were very small plants and took two years to become attached and are now growing well.

Dendrobium speciosum - 3 years - These were quite small specimens which attached themselves to the outside of half a pipe, which had been cut longitudinally. These also took two years to become attached and are now growing well.

A. Rothwell, 11 Bonnie View Street, Cronulla. N.S.W.

NOTES ON BOTANICAL TERMINOLOGY.

Eric Gordon.

I have had so many enquiries following on my previous articles on Nomenclature that with the Editors permission I am going to make it easier for readers to understand Botanical Terms.

Normally these appear in a Glossary at the end of botanical publications in alphabetical order and I know by experience that it is not easy to tie up the terms with the plants parts to which they belong. I intend in these articles to tie the term to the plant part, so that if you want to know what terms are used to describe leaves, you will find them classed under leaves.

Many of the terms are not used in the description of orchids, but I am sure that almost every reader who is interested in Australian native orchids is also interested in the rest of our flora and will find my notes helpful.

Wherever possible, I have tried to give examples with which the reader will be familiar, but research takes time and our Editor is sounding off like the "Hound of the Baskervilles".

continued on page 58.

Notes on Botanical Terminology. continued.

Plants are PHAENOGAMOUS (Flowering) and CRYPTOGAMUS.
Flowering plants are DICOTYLEDONS OR MONOCOTYLEDONS.
Those increasing in concentric courses such as trees are DICOTYLEDONS.
Orchids are MONOCOTYLEDONS.

Plants are	TERRESTRIAL	when growing in the ground.
	EPIPHYTIC	if they grow on the outside of other plants, rocks etc.
	LITHOPHYTIC	when developing on rocks (lichens).
	ANNUALS	when they germinate, grow, flower, fruit and die within a year or less.
	BIENNIALS	when they devote their first year to vegetative growth and reproduce and die in the second year.
	PERENNIALS	if they have a variable growing period and then flower and produce seeds annually and last from several to hundreds of years.
ROOTS are:	TUBEROUS	when more or less irregularly swollen.
	NODULAR	when having nodules containing nitrogen fixing bacteria, mostly leguminous plants, *Acacia* etc.
	LATERAL	when spreading from a central root.
	ADVENTITIOUS	when developing from stems, branches or rarely, leaves (*Thrixspermum*).
	AERIAL	when normally exposed to the atmosphere as in epiphytes.
	RADICLE	when young and growing from the embryo in the seed.

STEMS usually support the aerial portion of a plant and conduct water and food to the different parts of the plants. There are many modifications.

Forms of STEMS when aerial are

STOLONS	when horizontal stems above ground which ultimately produce a new plant at the tip (Sometimes called runners, *Paspalum*).
SUCKERS	when they produce new plants from shoots growing obliquely from or slightly below ground level. (*Musa sapientum* the banana is an example well known to us).
TENDRILS	are filamentous, usually branched stems used for climbing (Passion Fruit, *Passiflora* sp).
SPINES or THORNS	are short pointed stems, occasionally bearing leaves. (Cockspur Thorn, *Cudrania*).
CLADODES or PHYLLOCLADES,	are green flattened stems which function as leaves. (Prickly Pear, *Opuntia* spp. and Celery Top Pines, *Phyllocladus* spp.)

When subterranean STEMS are

RHIZOMES	when distinguished from roots by the presence of scale leaves, nodes or buds, they usually send out roots from lower side.
CORMS	when they are a thick fleshy stem covered with *thin* brown scale leaves with a visible bud at the apex (*Gladiolus*).
BULBS	when small stems covered by *thick* fleshy scale leaves and thin dry scale leaves with the bud concealed within them. (Onion, *Allium cepa*).
TUBERS	when they are more or less irregular swellings borne on underground branches & bearing vegetative shoots. (*Pterostylis* spp.).
PSEUDOBULBS	when aerial and enlarged with a bulbous-like form and covered with a thick epidermis.

continued on page 59.

Notes on Botanical Terminology. continued.

HABIT of STEMS are named as follows, they are

ERECT	when upright.
DECUMBENT	when spreading horizontally.
SARMENTOSE	when long and weak.
DIFFUSE	when spreading and loosely branched.
PROSTRATE	when close to the ground.
CREEPING	when they emit roots from nodes.
TUFTED	when very short and close.
VOLUBLE	when they are supporting by twining spirally.
CAPREOLATE	when having tendrils and when supported by tendrils.
HERBACEOUS	when soft.
DICHOTOMOUS	when forking into more or less pairs.
ANCIPITOUS	when two edged. (as pseudobulbs of *Oncidiums* etc.).
ANNULATE	when surrounded with raised narrow bands or rings (*Phaius*, *Cynoches* etc.).
MONOPHYLLOUS	when producing only one leaf at the apex (pseudobulb or stem).
SCANDENT	climbing by the aid of other bodies (*Vanda teres*).

LEAVES usually consist of a LAMINA or BLADE and a PETIOLE OR LEAFSTALK.

NODES	are the points at which leaves arise on a stem.
INTERNODES	are the lengths between the nodes.
BASE	is the nearest end of leaf to stem.
APEX	is opposite end.
AXIL	is the upper angle between leaf and stem.

LEAVES with flat blades are said to be.

SESSILE	when the petiole is missing.
SHEATHING	when the lower part surrounds the stem for some distance. (*Diuris*).
PELTATE	when the petiole is inserted on under side of leaf some distance from the margin (young leaves of *Eucalyptus citriodora*, *Geranium*).
AMPLEXICAULE	when sessile and stem clasping. (*Dendrobium formosum*).
PERFOLIATE	when clasping around stem to opposite side.
DECURRENT	when edges are continued down stem.
RADICAL	when appearing to spring from the roots and are
ROSULUTE	when rosetted.
CAULINE	when borne on stems or branches. Opposite to RADICAL.
LEAF SHAPES	Many terms are used to describe leaf shapes and are used to describe both the vegetative and floral leaves (parts of the corolla, sepals and petals).
SIMPLE OR ENTIRE	leaves are in one piece with plain edges and are
CILIATE	when bordered with hairs.
DENTATE	when edge is cut in a little way.
SERRATE	teeth are regular, sharp and sawlike.
CRENATE	teeth are regular, blunt or rounded.
SINUATE	teeth are irregular, broad, but short.
UNDULATE	when leaf margins are wavy not flat.
LOBED OR CLEFT	when cut in more deeply than DENTATE but not reaching mid-rib
SINUSES	are spaces between lobes.
LANCINIATE	when lobes are narrow and irregular.
LINEAR	when long and narrow at least 4 or 5 times as long as broad, with parallel margins for the greater part of the length.
LANCEOLATE	when 3 or more times as long as broad, broadest below the middle and tapering to the APEX.

continued on page 60.

Notes on Botanical Terminology. continued.

CUNEATE	when broadest above the middle and tapering to the base (compared to a wedge).
FLABELLIFORM	(fan shaped) refer to a leaf broadly cuneate with a rounded apex.
SPATHULATE	when the broad part is short and close to the apex and the narrow tapering part is long (like a spatula or spoon).
OVATE	when broadest below the middle and scarcely twice as long as broad (egg shaped).
OBOVATE	when broadest above the middle and twice as long as broad (like an egg standing on its narrow end).

When approximating the geometrical figures thus named;

ORBICULAR	circular, ring-shaped, globular, rounded.
OVAL	egg shaped or ellipsoidal.
OBLONG	rectangular, with adjacent sides unequal.
ELLIPTIC	regular oval.
RHOMBOIDAL	quadrilatera of which only opposite sides and angles are equal.

To be continued.

Eric Gordon, 265 Goulburn Street, Sydney N.S.W.

Brief Abstracts from the Rupp letters to G. W. Althofer No. 8.

26 - 9 - 45: Caladenia dilatata R. Br.: Appears to be the most widely distributed of the Spider Orchids in N.S.W.
Caladenia clavigera A. Cunn. ex Lindl.: Type from Vale of Clwydd (Alan Cunningham) - usually found in southern states - Collie got it at Mudgee and Woolls near Yass. Rupp got it freely in Victoria and Tasmania - very attractive, but name not particularly appropriate, as sometimes sepals not clavate at all, or less so than in some other species.

Brief Abstracts from the Rupp Letters to G. W. Althofer No. 9.

1 - 5 - 48: Caladenia alba R. Br. var. picta Nicholls: - Type form is practically white. - flowers right through winter to spring.

Readers are reminded that all material appearing in this issue of THE ORCHADIAN under the name of A.W. Dockrill is copyright and may not be reproduced without his permission.

EDITOR.

MR. I.N. WHITCOMBE,
"SANDON",
PRINCES HIGHWAY,
CURIO. VIC.

MR. J.J. HENDERSON,
96 ROLAND AVENUE
WARRAWEE. N.S.W.

MRS. C.E. BRONGER,
16 ABUKLEA ROAD,
EPPING. N.S.W.

MR. J.W. YOUNG,
7 SUTTON STREET,
REDCLIFFE. QLD.

MRS. M. BOON,
CNR. BUNNERONG ROAD
& FRANKLIN STREET,
MATRAVILLE. N.S.W.

MR. R.B. WALLIS,
30 GRAND PARADE,
SUTHERLAND. N.S.W.

MR. N.A. LOWER,
7 PLAYFORD STREET,
GLEN ORMOND S.A.

MRS. P.T. PHILLIPS,
29 TRONGATE STREET,
STRATHFIELD. N.S.W.

MR. A. ROTHWELL,
11 BONNIE VIEW STREET,
CRONULLA. N.S.W.

MR. P. FETHERSTON,
18 BARKER ROAD,
STRATHFIELD. N.S.W.

MR. P. ALTHOFER,
"GLENORA",
DRIPSTONE. N.S.W.

MR. J.D. NIELD,
2/551 NEW SOUTH HEAD ROAD,
DOUBLE BAY. N.S.W.

MR. A.W. BONHAM,
[illegible] STREET,
HOLLAND PARK,
BRISBANE. QLD.

MRS. R.F. BARNES,
46 CHAMBERLAIN ROAD,
GUILDFORD N.S.W.

MR. J.E. MACKINNEY,
87 TURTON STREET,
SUNNYBANK. QLD.

MR. A.P. HELLETT,
CASA LUNA ORCHIDS,
STAR ROUTE 1,
BOX 219A,
BEAUFORT,
SOUTH CAROLINA. U.S.A.

MR. C.E. BRONGER,
16 ABUKLEA ROAD,
EPPING. N.S.W.

MR. F. GRAYDON,
29 FOURTH STREET,
CARDIFF SOUTH. N.S.W.

MR. L.A. [illegible],
BOX 762, [illegible],
[illegible]

[illegible] PERRY,
[illegible] STREET,
[illegible]. N.S.W.

MR. J.E. JONES,
"LIMBERLOST ORCHIDS",
FRESHWATER,
VIA CAIRNS. NTH. QLD.

MISS E.H. WRIGHT,
94 NAUGHTON AVENUE,
BIRMINGHAM GARDENS,
WALLSEND. N.S.W.

MR. C.H. SCOTT,
5 COULTER AVENUE,
BLACK FOREST. S.A.

MRS. M. SMITH,
HON. SEC. DUNGOG ORCHID SOCIETY,
75 CHAPMAN STREET,
DUNGOG. N.S.W.

MR. J.H. RAWLINSON,
5 DUNYULA ROAD,
BELLEVUE HILL. N.S.W.

THE DIRECTOR,
ADELAIDE BOTANIC GARDEN,
NORTH TERRACE,
ADELAIDE. S.A.

THE ORCHADIAN

June, 1964.

No. 6.

Published by the Australasian Native Orchid Society.

Patron: Sir John Hall Best.
Vice-Presidents: Eric Gordon.
J.H. Scott.
Hon. Secretary: W.T. Upton.
Ass.Hon.Sec.: S. Clemesha.
President: W.H. Murdoch.
Recordings: R. Curtis.
Publications: R. Kerr.
Orchadian: M.J. Corrigan.
Treasurer: J. Soiland.

Price: 2/-.

CORRESPONDENCE.

Editor: M.J. Corrigan, 13 Empire Street, Haberfield. N.S.W.
Hon. Sec.: W.T. Upton, 5 Woorarra Avenue, Narrabeen Nth. N.S.W.

35 MM. COLOUR SLIDE LIBRARY.

Eric Gordon is in the process of producing for the society, sets of slides on terrestrial and epiphytic orchids. Each set will comprise 36 slides with written text and will be available to members for a maximum of 3 weeks. A charge of 5/- will be made for each set, to cover forward registered post and to provide for future additions to the library. Lost slides will be charged for at 10/- each.
A list of the sets will be published in the next ORCHADIAN.

THE CONSTITUTION.

Your Council encloses with this edition of The Orchadian, a copy of the constitution for ratification. Please read it carefully and return your ratification form by the date specified. In accordance with clause 9 of the constitution and to enable an election of Council to take place this year, it is necessary that nominations for positions on Council be received by July 24th, 1964. Should you therefore desire to nominate any member, the form as attached may be used and forwarded to Mr. J.A.P. Blackmore, 25 Holden St., Ashfield. N.S.W. Subs.are due July 1st.

SYDNEY BRANCH GROUP MEETING. July 10th. 1964.

All members in the Sydney area should make a date to attend the next meeting as Jack Logan will be presenting a talk illustrated with some of his magnificent colour slides. Remember Railway Institute, Small Hall, Chalmers Street, Sydney. 8 p.m.

HOUSING YOUR NATIVE ORCHIDS.

Walter T. Upton.

I will endeavour to place before you a few suggestions and hints on the housing of your native orchids. If one considers the diversity of habitat of our native orchids it becomes apparent that there are many factors to consider in building a home for native plants. There are however, certain constant factors, regardless of location, these are free circulation of air, light and moisture. The degree of these factors will, however, vary. The first consideration must be the actual position of the bush-house in the garden. A reasonably open position is most suitable, if careful attention is given to the project the bush-house can be made to blend in with the garden and become an attractive part of it. In selecting a position, it is desirable that (a) early morning sunlight is unobstructed, (b) the area is not in shade in winter, (c) it is not a drafty position and (d) a good flow of fresh air is certain.

Size. Whatever size you decide upon, double it, because a bush-house is never large enough. It should in any case be fairly large and airy, a small snug bush-house is not conducive to free circulation of fresh air.

Height. It is important to realise the necessity to hand some epiphytes from the roof, therefore allow plenty of room for this. If it is intended to house a large specimen of Dendrobium teretifolium, this will settle your roof height for you.

Materials. I would strongly recommend a framework of galvanised piping (the weight of plants hanging from the roof, particularly after a heavy watering is considerable) as this is strong and durable. Between the galvanised piping uprights one can use limbs of ti-tree, whilst these will not last as long as the piping, they are suitable hosts for a lot of our native epiphytes and to see an upright ti-tree limb covered with epiphytes adds beauty to one's bush-house. If timber is to be used instead of piping,

continued on page 71.

STH. YARRA, S.E.1, VIC.
10 OCT 1966

Registered at the G.P.O. Sydney for transmission by post as a periodical.

NOTES ON BOTANICAL TERMINOLOGY. Continued

Eric Gordon.

LEAVES (Continued). The following terms refer to the leaf bases.

TAPERING	same as Acute but refer to base.
NARROWED	same as Acuminate but refers to base.
ROUNDED	same as Obtuse.
CORDATE	same as Emarginate.

In cordate leaves the lobes are referred to as auricles, and are known by their shapes and arrangements in these terms

AURICULATE	if the auricles are pointed.
SAGITTATE	if the points are directed downward.
HASTATE	if the points diverge horizontally.

When referring to the whole leaf the following terms apply

RENIFORM	when kidney shaped, broader than long, cordate with rounded auricles, (*Acianthus reniformis*)
FALCATE	when curved like the blade of a scythe, (*Sarcochilus falcatus*)
CORDIFORM	when heart shaped ovate and acute with broad auricles.

Leaves with solid blades are described this way

SETACEOUS or CAPILLARY	when very slender like bristles or hairs.
ACICULAR	when slender, but stiff with a needle point.
SUBULATE	when thicker and firmer like awls
LINEAR or OBLONG	used in the same sense as with flat leaves.
OVOID	as ovate.
OBOVOID	as obovate.
GLOBULAR	as orbicular.
ROUND	is used for both flat and solid leaves.
TURBINATE	when top shaped.

There are many other terms which apply to solid leaves such as Conical, Obconical, Pyramidal, Clavate etc., but I feel that descriptions of these may be confusing. Cross sections of solid leaves are

TERETE	when round.
TRIGONOUS or TRIQUETROUS	when triangular.

The texture of leaves also has its own terminology, they are

FLESHY or SUCCULENT	when thick and soft, succulent implies more juice.
CORIACEOUS	when firm or stiff or tough and leathery.
CRUSTACEOUS	when firm and brittle.
MEMBRANOUS	when thin and not stiff, (lax).
SCARIOUS	when thin and more or less transparent.

The smaller leaves on plants are known by these terms

SCALES	are very small leaves which are
IMBRICATED	when overlapping and
SQUARROSE	when tips are pointed, spreading or recurved.
BRACTS	are the upper leaves of a plant in flower (very often coloured).
BRACTIOLES	are the last bracts immediately under the flower.
STIPULES	are small leaf-like appendages to the stem and
STIPITATE	is the term used when scales, bracts and stipules are stalked.

Leaves not simple or entire are

COMPOUND	when divided or dissected to the midrib or base, and when the parts divided off called leaflets, separate from the whole leaf without tearing.

Leaflets (petiolulate) may be petiolulate or sessile and may be arranged as follows

PINNATELY	when arranged (as the barbs of a feather) on each side of an axis.
PALMATELY	when arising from a common centre.
TERNATELY	when arranged in threes.

continued on page 63.

Notes on Botanical Terminology. continued.

The stems of leaflets are known as PETIOLULE and the mid-rib of compound leaves are RACHIS - at the base of the Petiolule, these may occur STIPELLAE.

Distinguishing between simple and compound leaves is made easier by remembering that

1. In a compound leaf the lamina must not continuously extend even if developed to only a slight extent between incisions and along the rachis.
2. A compound leaf has no terminal bud, nor any buds in the axils of the leaflets - Short branches with simple leaves can sometimes be confused with compound leaves but the existence of axillary buds shows that they are not compound leaves.

There are some modifications of leaves which are worthy of note, I mentioned some of these under "stems" but I feel that a little daboration will be worth-while.

TENDRILS	These may be the whole leaf modified as in Cucurbitaceae (Melons, Pumpkins, Cucumber etc.) or some of the terminal leaflets only, as in a member of the leguminosae, *Pisum sativum* (the common pea). In some cases stipules are modified to form tendrils as in *Smilax* spp.
SPINES	In some cases the whole leaf is represented by a spine as in *Opuntia* spp. (Prickly Pear) and other Cactaceae. Citrus spp. (oranges etc.) are other examples. Some of the pinnate-leaved Acacias have the stipules so modified.
PHYLLODES	Are flattened leaf stems (petioles) whose blades (lamina) are absent. They serve as leaves and are found in many of the Acacias.

To be continued.

Eric Gordon, 263 Goulburn Street, Sydney. N.S.W.

CULTURE OF EPIPHYTIC ORCHIDS.

W.H. Murdoch.

The suggestion that caution be exercised in the matter of fertilising orchids, certainly created interest. This is all to the good. Admittedly, one is privileged to do what he likes with his plants, but, the continued urging by writers, whose experience is to be questioned, may not be accepted off-hand. Experience proves some plants will react to fertilising and gradually die, whilst others will grow prodigiously. Unquestionably it causes softness in the plants and subsequent difficulty in propagation. It can also induce growth that is out of character of the plant, and, at times, aborted flowers. Anything else? Well many conjectures can be advanced, which, while not proving anything in particular, at least give food for thought. It is always significant to me that we rarely, if ever, see for the second time many of those top line exhibits. Why? Again, why the complete absence of reports of comparative tests?

Two facts are important. First, do we really know what the individual plant wants? Second, do we really know what we are giving it? The answers are obvious.

One correspondent, incidentally a friend of 30 years standing, proffered his views. Mr. G.A. Patterson of Coffs Harbour Jetty, (Pat, to his legions of friends), mentions *Anthuriums* that died when other plants did not, under the same dosage. Some orchids will do that Pat. As for the staghorns (*Platycerium grande*) that also died. This alas, is a typical instance, all too common. Just why was it deemed necessary to fertilise a staghorn? Possibly the same reason why so many fertilise orchids. "Have orchid ---- Will fertilise".

When you see your plants become unthrifty, spotted, marked, or distorted, then be assured something has caused it. It took me nine years to restore a plant to its former health, and this is by no means an isolated case.

continued on foot of page 75.

A NEW COMBINATION FOR A SMALL NORTH QUEENSLAND EPIPHYTE

A. W. Dockrill.

DENDROBIUM TORESSAE (F. M. BAIL.) DOCKR. COMB. NOV.
SYN. :- *BULBOPHYLLUM* TORESSAE F. M. BAIL., THIRD SUPPL. SYNOP. QLD. FLOR. 72 (1890) ET QLD. FLOR. 5; 1538 (1902); W. H. NICH., NTH. QLD. NAT. 10, No 66:2 (SEPT. 1941).

A small plant growing in masses on rocks or the bark of trees. Rhizome about 0.5 mm. diam., extensively branching, clothed with scarious bracts. Roots short. Leaves sessile and densely packed on the rhizome, their bases surrounded by a large scarious bract, about 4-8x2-4mm. ovate, acute, thick, almost as thick as broad, deeply channelled so as to be somewhat cymbiform, the whole surface densely but finely pitted. Ovary produced directly from the base of the cavity of the leaf and subtended by a prominent scarious bract. Flower solitary, its back resting on top of the leaf, large for the size of the plant, about 6 x 6 mm., cup-like, the perianth segments usually dingy cream with mauve apices. Dorsal sepal about 3 x 2 mm., ovate or oblong obtuse. Lateral sepals about 5 x 3 mm., suboblong, acute, joined at their bases to form a very broad mentum. Petals about 2.5 x 1.0 mm., obovate acute. Labellum broadly adnate to the apex of the column foot, about 6.0 x 2.5 mm., thick in texture, trilobate, curved throughout its length; lateral lobes about 0.5 x 4.0 mm., obliquely subcrescentic, greenish-cream or yellow with red spots; mid-lobe about 2 x 2 mm., yellow, thick, semicircular, slightly channelled above. Column, incl. foot, about 5 x 1.5 mm., beautifully curved, red-dotted; apex of column (margin of the clinandrium) with about 6 short obtuse teeth extending to about ¼ the height of the anther. Stigma transverse oblong, the ends obtuse. Rostellum rather large, its base the full width of the clinandrium but only about ¼ as long as broad. Anther attached by a long slender filament, green, very high at the back and rapidly tapering to the front; rostrum short but very broad, its margin minutely fringed. Pollinia (4) subfalcate when viewed from the side.

DISTRIBUTION:- North Queensland from the Tully River to the Annan River, favouring coastal gorges but extending to the tablelands.

FLOWERING PERIOD:- Somewhat erratic, usually June-July and January. It is difficult to understand why W. H. Nicholls, who dealt with this plant so admirably l. c., allowed it to remain in the genus *BULBOPHYLLUM*, especially in view of the similarity of the flowers to those of the *DENDROBIUM LICHENASTRUM* (F. von MUELL.) KRZL. complex, some aspects of which he so ably illustrated in ibid. 8, No 55: 3-4 (Sept. 1938); & ibid No 56: 2 (Dec. 1938) (See also Dockr. Orchadian No 3: 28-29 (Dec. 1963)). The present author was doubtful about its inclusion in *BULBOPHYLLUM* and sent preserved specimens to Kew Gardens early this year (1964) for determination. Confirmation was received that the plant is, in fact, a *DENDROBIUM*.

A. W. Dockrill, II Balzer Close. Edge Hill, Cairns. Nth. Qld.

PHREATIA ROBUSTA Rogers.

A. W. Dockrill.

Trans. Roy. Soc. S.A. 54:39 (1930).
An epiphyte, extremely robust for the genus. There is no rhizome and no annual vegetative reproduction, merely a flattened pseudobulb up to 5 x 5 x 2 cm. which continues to grow throughout the life of the plant as the alternate leaves arise from the apex; the base is covered by the scarious remains of persistent bases of leaves. Leaves 4 -10, 7 - 35cm x 1.5 - 2.5 linear, blunt and unequally bilobed at the apex, thin, mid-rib prominent, conduplicate for at least the basal half, erect, the older ones spreading. Peduncles 1 or 2 from the axils of the upper leaves and usually exceeding them in length, glabrous, erect and somewhat decurved; bracts about 4 - 6 x 0.5 mm., triangular. Pedicels about 2.5 mm. long, filiform; bracts similar to the cauline ones but about half their size; ovaries about 2 mm. long.

Flowers exceedingly numerous in a cylindrical raceme, white, more or less cup-shaped. Dorsal sepal about 1.5 x 1.0 mm., ovate, somewhat cucullate. Lateral sepals about 1.5 x 1.5 mm., obliquely ovate, decurrent on the column-foot to form a short, rounded mentum. Petals about 1.0 x 0.7 mm., ovate. Labellum about 1.2 x 1.2 mm., rather broadly

continued on page 66

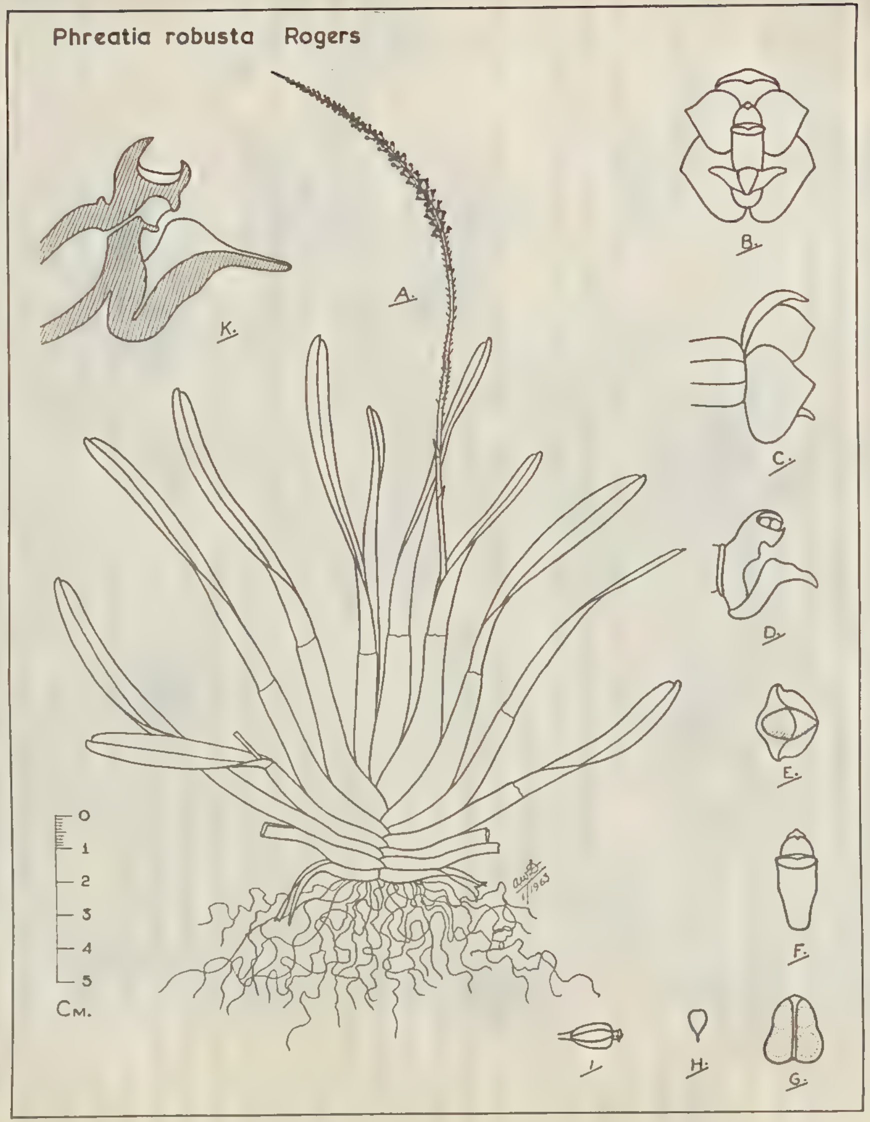
KEY TO PLATES:

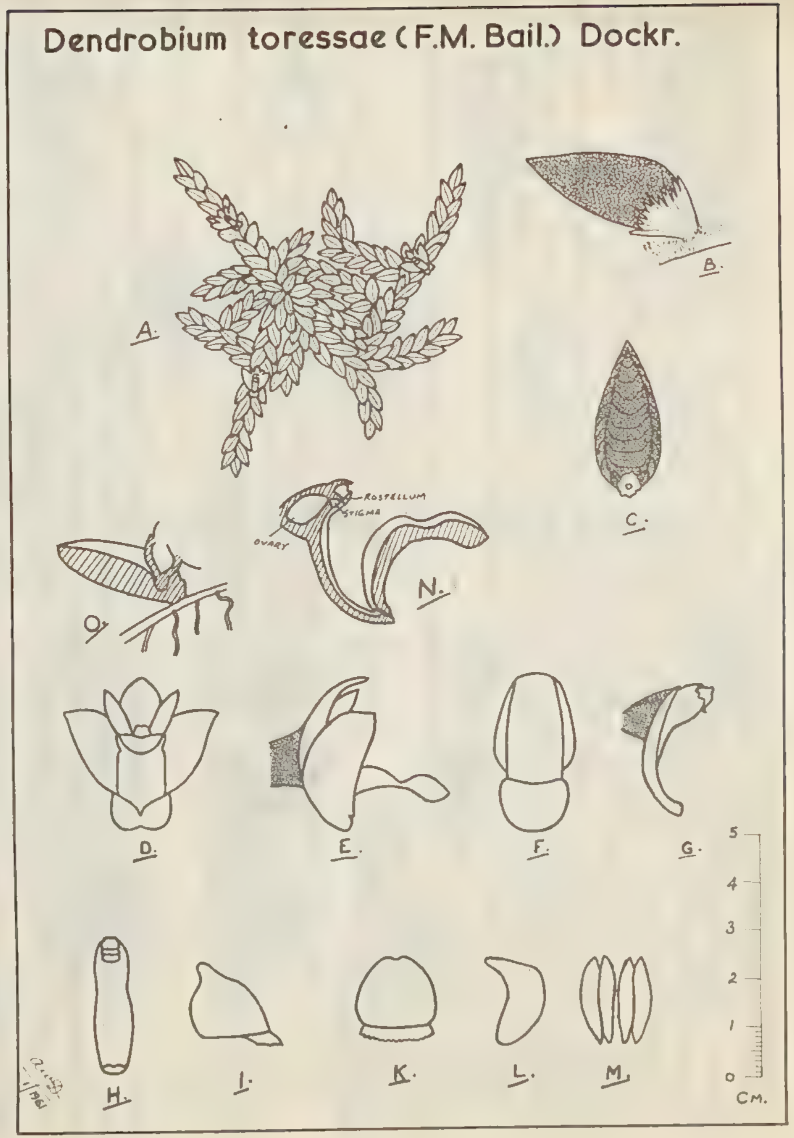
Dendrobium toressae

A. Plant .... to scale.
B. Leaf from the side .... to scale X5
C. Leaf from above .... to scale X5
D. Flower from above .... to scale X5
E. Flower from the side .... to scale X5
F. Labellum, flattened out .... to scale X7
G. Column from the side .... to scale X7
H. Column from the front .... to scale X5
I. Anther from the side .... greatly enlarged
K. Anther from the front ....greatly enlarged
L. Pollinium from the side .... greatly enlarged
M. Pollinia from the front .... greatly enlarged
N. Longitudinal section of column and labellum...... .... to scale X7
O. Longitudinal section of leaf & ovary (all bracts removed) ....to scale X5

Phreatia robusta

A. Plant ....to scale X½
B. Flower from the front .... to scale X20
C. Flower from the side ....to scale X20
D. Column and labellum from the side..to scale X25
E. Labellum from above .... to scale X20
F. Column from the front ....to scale X25
G. Anther from below ....to scale X approx. 80
H. Pollinium .... to scale X approx. 80
I. Capsule.. to scale X 5
K. Longitudinal section of column and labellum..... .... to scale X40





Phreatia robusta Rogers. continued

clawed, subrhomboidal, decurved about the middle, apex minutely papillose, near the base a small shallow depression containing viscid fluid. Column about 0.8 x 0.7 mm. with a foot about the same dimensions; clinandrium deep. Stigma subcrescentic, deeply sunken, widely separated from the rostellum. Rostellum large, very broad, erect. Anther firmly hinged by a large filament to the apex of the column, shallow, not rostrate, margins inrolled and meeting below. Pollinia 8, extremely difficult to remove from the anther without damage, so that their exact shape uncertain; caudicles very short and slender. Capsules about 2.5 x 1.5 mm., obovoid.

DISTRIBUTION:- North Queensland, mostly mountain gorges within 60 miles of Cairns.

FLOWERING PERIOD:- Mostly October to February, with January the main month.

A. W. Dockrill, 11 Balzer Close. Edge Hill, Cairns. Nth.Qld.

TWO HELMET ORCHIDS - Corybas undulatus (Cunn.) Rupp and Nicholls and Corybas unguiculatus (R. Br.) Reichb. f.

S. Clemesha & W. T. Upton.

The genus Corybas (formerly Corysanthes) consists of about 50 species extending from the Himalayas to Australia and New Zealand.

In Australia, 9 species have been recorded, two (2) of which have been recorded in New Zealand, these being Corybas aconitiflorus and Corybas unguiculatus. In addition to these; New Zealand has recorded a further six (6) species which are not known to occur in Australia. All except one (Corybas carsei) have long filiform sepals and petals unlike the Australian species of the genus. Perhaps the most remarkable New Zealand species is Corybas cryptanthus which expands its flowers beneath the decaying vegetable matter on the surface of the soil, in a similar way to New South Wales' Cryptanthemis slateri and Western Australia's Rhizanthella gardneri. Corybas cryptanthus like many species of Corybas extends its stem after pollination. This means the seed capsule grows above ground level, allowing ease of seed dispersal.

Corybas undulatus. This species was described by Alan Cunningham in 1833. It was not seen again till 1924, when the Rev. H. M. R. Rupp and his daughter, re-discovered it at Bulahdelah. The locality of Cunningham's plants is not known.

Since 1924 the species has been found on the Moreton Bay Islands and is understood to have been collected in a number of areas between there and Bulahdelah. One of the authors received a perfect specimen, collected near Smoky Cape by Mr. K. Holmes of Kempsey N.S.W. A number of collectors including the authors have found Corybas undulatus in parts of Sydney's Warringah Shire. In May 1963, one of the authors (S. C. Clemesha) found the species at Bergalia, south of Moruya N.S.W. This being more than 200 miles south of the previously known recording. The collectors determination was verified by Mr. L. [illegible]. Cady, before the specimen was placed in the National Herbarium at Sydney. The species was rare in the Bergalia area. The authors have heard reports of the species being in the Royal National Park, but, have not seen specimens from there. In our experience the plant grows in poor soil, under a cover of short Eucalypts, Banksias, Melaleucas etc. Glossodia minor, Acianthus exsertus, Acianthus caudatus, Cryptostylis erecta, Cryptostylis subulata and Pterostylis parviflora grew in the same area. The leaf is heart shaped and to the inexperienced eye, difficult to pick from Acianthus exsertus and Acianthus fornicatus. Unlike the other members of the "fringed group" of the genus Corybas, the leaves in many cases are greyish-purple beneath. One leaf is normally produced by each plant. The plant normally flowers in May and June. The flower is large in proportion to the leaf. The dorsal sepal and labellum are the two (2) conspicuous parts of the flower. The lateral sepals, though small, are large compared to the almost absent petals. They can be seen on illustrations C & F. The labellum is greatly recurved from the base. The lamina is broad and high-lighted by a large white boss at the centre of the lamina and is irregularly and minutely fringed around the edge, not conspicuously fringed as in some other members of the "fringed group". An important feature of this species is the protuberance (or raised formation) near the base of the labellum. The labellum terminates in a small point which is curled under at the tip.

continued on page 68.

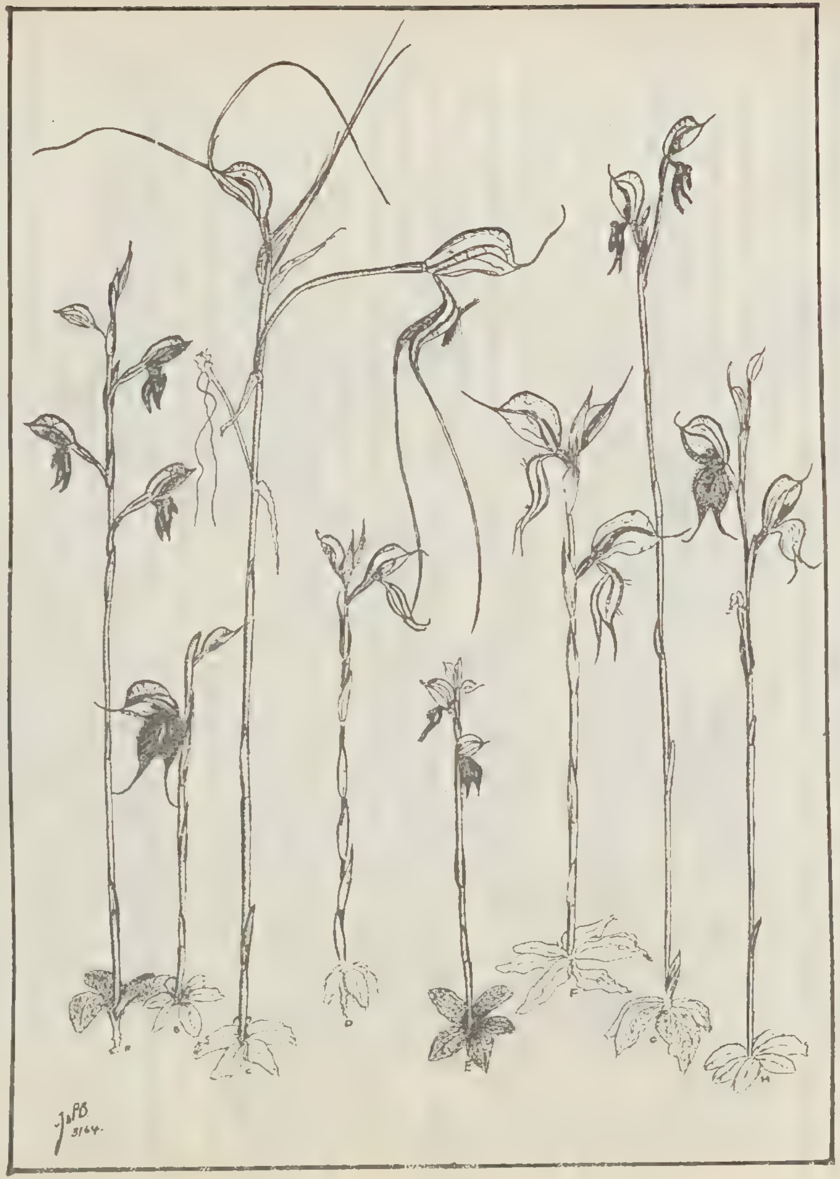
KEY TO PLATES:

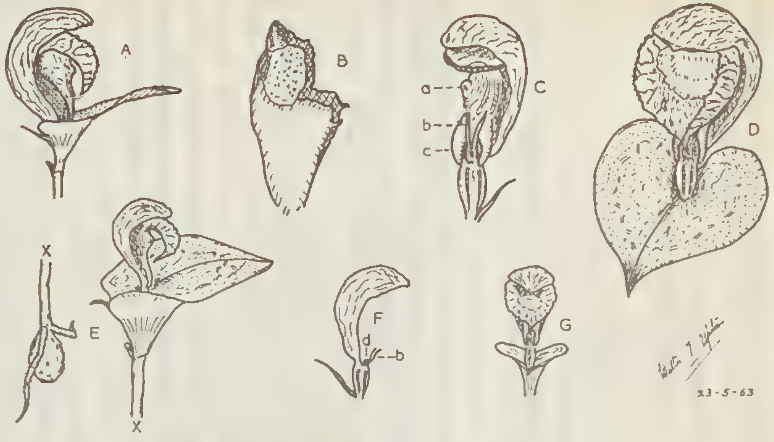
Corybas undulatus

A. Flower and leaf from side, 1½ times natural size.
B. Column greatly enlarged.
C. Flower with part of labellum cut away to show protuberance at base of lamina, spurs at base of tube and lateral sepals. Twice natural size.
D. Flower and leaf twice natural size.
E. Plant natural size.
F. Flower with labellum removed, natural size.
G. Flower from front, natural size.
a. protuberance, b. lateral sepals, c. spur, d. petals.

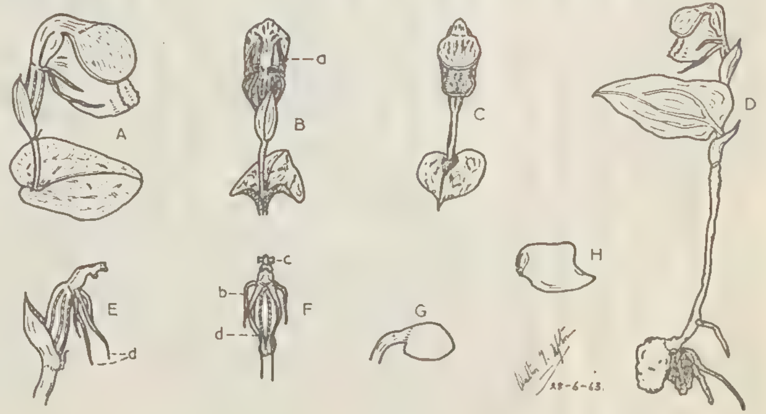
Corybas unguiculatus

A. Flower and leaf from side, twice natural size.
B. Flower and leaf from rear, 1½ times natural size.
C. Flower and leaf from front, 1½ times natural size.
D. Plant natural size.
E. Flower from side with dorsal sepal and labellum removed. 2½ times natural size.
F. Flower from front with dorsal sepal and labellum removed. 2½ times natural size.
G. Dorsal sepal natural size.
H. Labellum natural size.
a. auricle, b. petals, c. column wings, d. lateral sepals.





Corybas undulatus (Cunn.) Rupp & Nicholls.



Corybas unguiculatus (R.Br.) Reichb. f.

Two Helmet Orchids - Corybas undulatus and Corybas unguiculatus.

Continued.

The inner surface of the labellum is velvety and a beautiful deep red-purple colour. The large raised central boss or disc has a frosted appearance.

The dorsal sepal is hooded. It is beautifully veined, so as to remind one of a stained glass window. The column is difficult to see unless the flower is pulled apart and to assist, the illustration shows the column considerably enlarged.

This species is known to continue stem growth after pollination for the purpose of seed dispersal. The authors consider that Corybas undulatus is more closely related to Corybas diemenicus than to any other species but can be distinguished from it as follows. Corybas diemenicus has its fairly inconspicuous fringe inturned and it flowers in late winter and early spring, whereas Corybas undulatus flowers in May and June. Corybas diemenicus is fairly common in Victoria, Tasmania and south east South Australia, but has only been recorded from the central western slopes in N.S.W.

Corybas undulatus like many other Corybas species, presses very unsatisfactorily. Flowers almost always collapse when despatched fresh. The only satisfactory way to preserve them appears to be in a formalin mixture, or some similar preservative.

Corybas unguiculatus (R. Br.) Reichb. f.

This species was described by Robert Brown, in Prodromus Florae Novae Hollandiae in 1810. It has been recorded at least as far north as the Hawkesbury River in N.S.W. and also grows in Victoria, south east South Australia, Tasmania and New Zealand. The species is very rare in New Zealand and Mr. E.D. Hatch, in his excellent paper, "Auckland's Orchids" states, that in his opinion its occurrence in New Zealand is due to seed of this species being windborne from Australia.

It prefers coastal areas and in our experience, grows in very sandy soils under fairly heavy shade. It is not nearly as common as other species of the genus, such as Corybas aconitiflorus or Corybas fimbriatus, in N.S.W. and is rather sparingly distributed throughout its entire range. It grows in scattered groups, and the authors have seen up to 5 plants in such a group. Usually flowers will be seen on one or two plants in each group.

The normally single leaf is a grey-green colour and often is purplish-grey beneath. The normally single flower is produced in winter and most commonly in July in N.S.W.

Unlike most Australian species of Corybas, the flower does not sit right on the leaf, but is on a conspicuous slender stem. The lateral sepals and petals though very small compared to most of the New Zealand species that appear to be absent from Australia, are large compared with those of the "fringed group". They are creamy-white coloured and are appressed against the labellum. The labellum is longer than the dorsal, is almost tubular and is darker in front. Bearing a variable number of rows of calli inside. The dorsal sepal is broad and hooded in front, narrowing in the rear, where it is abruptly contracted into a claw. (The name unguiculatus means clawed). The dorsal has a beautiful almost white border all around it. The column is small and cannot be seen unless the flower is pulled apart. It is winged at the base as the illustration shows. The flower has a beautiful sheen all over it.

In the swamplands of the far north coast of N.S.W. and in south Queensland grows Corybas fordhamii, which is closely related to Corybas unguiculatus. Corybas fordhamii grows a considerable distance from where Corybas unguiculatus appears to have reached its northern limit. Corybas fordhamii differs from Corybas unguiculatus in a number of ways, including the following. The labellum is shorter than the dorsal rather than the reverse. The leaves are green on both sides and the dorsal sepal is not abruptly contracted into a claw as in Corybas unguiculatus. Remarkably enough Corybas carsei, a very similar species to Corybas fordhamii, grows in bog lands of the north island of New Zealand. In Corybas carsei the calli of the labellum are present, whereas in Corybas fordhamii they are absent.

Corybas unguiculatus, C. fordhamii and C. carsei press much more satisfactorily than the "fringed group" of Corybas.

continued on page 69.

Two Helmet Orchids - Corybas undulatus and Corybas unguiculatus.

continued.

Both Corybas undulatus and Corybas unguiculatus, in our experience, will grow in a mixture containing equal parts of coarse sand, peat moss and loam. The buds are easily destroyed by overhead watering. Containers should not be allowed to completely dry out.

S. C. Clemesha, 3 Consett Street, Concord West, N. S. W.
W. T. Upton, 5 Woorarra Ave., Narrabeen Nth., N. S. W.

THE "RUFOUS GROUP" OF PTEROSTYLIS - A PRELIMINARY REVIEW.

J. A. P. Blackmore.

It is not only their comparative ease of cultivation which makes the members of the genus Pterostylis - the Greenhoods - some of the most interesting of orchids to lovers of our terrestrials. The large number of species with their subtle variations in shape, the ingenious pollinary mechanism involving, in many cases, an extremely irritable trap-like labellum, a potent liquor of inebriating qualities, a prison comprising the petals and dorsal sepal fused into a hood and further barred by hairs which leave the imprisoned insect only an escape passage past the sticky stigma and the waiting anther at the end of the passage, these and the wide-spread distribution from the coast to the inland make it one of the most interesting of native orchid genera. The members of the group frequently referred to as the "Rufous Group" owing to the reddish colour of many of the flowers have a special interest. All of the species of the group are multi-flowered and the flowers in many cases have a considerable grotesqueness of form. The labella are extremely irritable and are generally furnished with long hairs (referred to by the cognoscenti as "setae"). They range from the quite small Pterostylis pusilla which may be only some 6 cm. in height to the almost giant plants of Pterostylis woollsii which may reach almost 40 cm. and have lateral sepals 10 cm. in length.

Unfortunately the classification of some of the species is by no means certain. In the "Orchids of N. S. W.", H. M. R. Rupp, in a note at the end of his description of Pterostylis rufa on page 98, reviews some of the past confusion and the attempts to clarify it by the creation of new species or the lumping of a number of species into Pterostylis rufa. He then states "from the above remarks it is clear that this Rufous Group of the genus requires critical revision". His last word on the subject appeared in the Victorian Naturalist Vol. 62, page 160, when after giving a redescription of the most recently described member of the group, Pterostylis boormanii, he stated "it seems to me that the time is ripe for some discussion of the taxonomy of the group to which these plants belong. Undoubtedly it is the most difficult group in the genus". If anyone doubts the problem, let him compare the illustration of Pterostylis rufa in R. D. Fitzgerald's "Australian Orchids" Vol. 1, part 2, which no one seems to have denied, represents Pterostylis rufa, and G. V. Scammel's illustration in plate xvii, on page 97 of H. M. R. Rupp's "Orchids of N. S. W." which is not Pterostylis squamata as there stated, but appears to be identical with the large flowered plant referred to as Pterostylis rufa in South Australia.

What better place for a discussion of the problem of the classification of this interesting group than the pages of THE ORCHADIAN.

With the concurrence of the Editor, the writer proposes to publish a description of each of the accepted members of the group in succeeding issues, accompanied by an illustration setting out the general appearance of the plant and the details of the labellum and column, which are so important in classification. This publication will certainly not be with the intention of the immediate re-classification of any of the members of the group, but with the idea of stimulating interest amongst members of the society and the assembling of the basic material whereby any worthwhile discussion may take place.

Apart from those who have managed to build up a library of the available publications or who have access to the Public Libraries of the capital cities or State herbaria, it would be very difficult for illustrations of each of the species to be found.

The accepted species in the group are as follows:
Pterostylis rufa R. Br., Pterostylis squamata R. Br., Pterostylis mitchellii Lindl., Pterostylis woollsii FitzG., Pterostylis pusilla Rogers., Pterostylis boormanii Rupp.

continued on page 70.

The "Rufous Group" of Pterostylis - A Preliminary Review. continued.

Pterostylis rufa was described by Robert Brown from specimens collected in the "Port Jackson" area and he also described another species from this area - Pterostylis gibbosa. In his "Flora Australiensis" Bentham included this latter species in Pterostylis rufa stating that to him it seemed to be only a luxuriant, tall growing form of Pterostylis rufa. Apart from this, Pterostylis gibbosa seems to be quite unknown. Pterostylis rufa is recorded from all states apart from Tasmania, but, there is quite probably more than one species involved here.

Robert Brown also described Pterostylis squamata from Mount Wellington in Tasmania and it is now recorded from all states apart from Queensland.

Pterostylis mitchellii was discovered by Sir Thomas Mitchell, the explorer, at "Mount Kennedy, on the Maranoa" (southern Queensland) and has a range co-extensive with Pterostylis rufa. Bentham also included these two species, Pterostylis squamata and Pterostylis mitchellii with Pterostylis rufa, but all later authorities have treated them as separate species.

Pterostylis woollsii, in many ways the most remarkable in appearance, was discovered by Dr. Woolls, a noted local botanist of the last century, in dry country near Richmond and is practically confined to New South Wales, barely extending into Queensland and Victoria. Pterostylis pusilla the smallest of the group was described by Dr. R.S. Rogers from South Australian specimens and now seems one of the most commonly collected species in the group, being found in all states although being restricted to the extreme south in Queensland. No other mention has been made in this short resume of the various varieties which have been described, but reference should be made here to the often tall and robust Pterostylis pusilla var. prominens Rupp which is the most common member of the group around Sydney. The author of the variety in a number of places before his death, stated that he was now of the opinion that it should be raised to specific rank and that Dr. Rogers had also expressed the opinion that it was not conspecific with Pterostylis pusilla. However, the late H.M.R. Rupp does not appear to have anywhere raised the variety to a species and its position will need to be considered. Its range is confined to N.S.W. on present records but may extend to southern Queensland.

The last member of the group to be described was Pterostylis boormanii which was also named after its discoverer, who found it at Peak Hill on the C.W. Slopes of N.S.W. W.H. Nicholls disputed the description of this species claiming that it was Pterostylis squamata. Rupp later, however, published a fresh description of it from fresh material. It seems to be well established as a species though restricted from present collections to the C.W. Slopes of N.S.W. and adjacent areas.

As to the habitat of the plants, anyone who has read Benthams note that Pterostylis rufa was common in the Port Jackson area and therefore hoped to find it in the Hawkesbury sandstone bush of the County of Cumberland would be disappointed. Where Bentham mentions Port Jackson, he is apparently referring to Robert Brown's specimens collected in the early days of the colony, "Port Jackson" merely indicating the general area of the colony which would thus extend e.g. to at least Windsor on the northwest and possibly over an even wider area.

Whilst some of the species will be found on the coast in drier spots, they are basically inland species and are most likely to be found on the western slopes of the Dividing Range. They possess considerably larger tubers than other species of Pterostylis and are thus able to grow in semi-arid conditions. They seem to particularly favour the tops of hills or flatter areas on the hillsides under Callitris pines. However, they are not by any means restricted to such areas and may be found in scrub and grassland, as well as in dry Eucalypt forest.

The writer would certainly like to receive specimens of any of the group, whether pressed or in a fresh state. It is apparent that only by examining the widest possible range of specimens, including, if possible, all the major collections, that the difficulties in the classification of this interesting, but difficult group will be ironed out. The illustration accompanying this preliminary resume is not to be taken as being definitive of any of the species, but is merely included to indicate to many

continued on page 71.

The "Rufous Group" of Pterostylis - A Preliminary Review. continued

readers, who will not be familiar with the group the general shape and appearance of the species, (or at least, in some cases, as they have been delineated by authorities). As mentioned earlier the individual species will be dealt with in future issues, with illustrations setting out the floristic details.

Key to illustration. (see page 67).

A. Pterostylis pusilla var. prominens. B. Pterostylis boormanii.
C. Pterostylis woollsii. D. Pterostylis squamata (after W.H. Nicholls).
E. Pterostylis pusilla. F. Pterostylis rufa (form accepted as such in S.A.). Extends to N.S.W. G. Pterostylis rufa (after R.D. Fitzgerald).
H. Pterostylis mitchellii (after W.H. Nicholls).

J.A.P. Blackmore, 25 HoldenStreet, Ashfield. N.S.W.

Housing Your Native Orchids. continued

ensure that it is treated with a preserving oil before being used. (Do not tie your orchids on to the timbers that have just been treated with preserving oil.)

The first 1'6" of the external walls should be of brick or similar material.

The south and west sides I consider should be completely closed, using such materials as fibro, weather board etc.

For the north and east sides I recommend a wire mesh interwoven with aluminium slats.

Roofing. Aluminium or wooden slats fixed to the piping frame, and spaced so as to allow approximately 60% light is ideal.

In the hot summer months ti-tree shading can be tied down on top of the slats to bring the amount of light down to about 50% light. Roofing slats should run due north and south to ensure that as the sun moves from east to west the plants receive alternate light and shade and do not get too much of one or the other.

Benches. My preference is for metal framed benches, they are much cheaper in the long run. They should be about 2'6" high and should consist of a sturdy wire mesh (not more than 3" mesh.) this allows for greater circulation of air. On the west and south sides (that is those sides farthest away from the sun) I would suggest 3 tier benches as this enables the maximum amount of sunshine to reach all plants.

Floor. I find the most satisfactory material here to be ashes, they maintain a moist atmosphere. I allow moss and ferns to grow under the benches, this also helps to give the right kind of atmosphere for native orchids. If it is possible to install a pool under each bench or if the bush-house is large enough, in the centre, this is an added advantage, but must be kept clean or else a stale atmosphere is inclined to permeate the bush-house.

Arrangement. Hang sunlovers from, and close to, the roof, ensuring that the smallest ones are to the north or east, so as not to take away too much sunlight from the plants on the benches.

Hang these plants in such a position that excess water draining from them does not drip on to pots below, otherwise compost will soon be disturbed and removed from the pot, or else a new growth or flower spike will damp off through too much water. Place shade lovers on and below benches, depending on the degree of shade they require. Place terrestrials together in their various types, culturally that is, so that watering can be carried out correctly for them. Most terrestrials require diffused light. Place those that require early morning sunlight by the eastern wall. It is a good idea when building a bush-house to consider the future possibility of an extension, and in this regard I would suggest that the south and west side are of a permanent nature and that it is made possible to extend from the north or east side at a later date. One final point, remember, always keep your bush-house clean, like ourselves a native orchid does not like a dirty home.

Walter T. Upton, 5 Woorarra Avenue, Narrabeen North. N.S.W.

THE POLLINATION OF ORCHIDS

R. J. Curtis.

Much has been written about the horticultural aspects of raising orchids, however it is only occasionally that an article mentions something about the process of pollination of an orchid flower which eventually results in the formation of seed.

In this article it is proposed to mention a few of the observations made concerning the natural pollination of some Australian native orchids and to briefly describe the process of seed formation. Orchids in nature often resort to highly complex processes to achieve pollination. However, we must first study the actual structure of the flower involved in order to fully appreciate the pollination process. An orchid flower when in bud has a sheath of three sepals, upon opening the sepals spread and allow the petals to unfold, the sepals and petals generally look alike in colouring and form, in some genera such as Pterostylis the dorsal sepal and petals are fused into one segment i.e. galea. There are always three sepals and three petals, one petal however is usually very different both in colour and form and is called the labellum, or lip. Orchids, unlike other flowers have the stigma, style, anther, and stamens combined into one structure referred to as the column, located at the centre of the flower. The anther enclosing the pollinia is located near or at the apex of the column, with the stigma which is usually a cup shaped cavity having a sticky surface below.

For an orchid to become cross pollinated, the pollen of one flower must be laid in the stigmatic cavity of another flower, for self pollination the pollen of a flower is laid in the stigmatic cavity of the same flower.

Although there have been many observations of the pollination of Australian native orchids recorded, these only describe a few of the total number available for study and it will be many many years, before a complete record will eventuate. The following descriptions represent just a few of these recordings made by such noted botanists as Rogers, Cheesman, Erickson, Fitzgerald, Sargent, Coleman & Dockrill.

Observations by R.D. Fitzgerald, O.H. Sargent (1), and Edith Coleman (2) on the pollination of some Pterostylis species revealed the following intriguing method. These orchids possess a sensitive labellum, an insect entering the flower to feed upon nectar held in the tissue at the base of the labellum, triggers the latter into closing the entrance of the flower, preventing the insect from escaping. The other walls of the prison are formed by the galea (combined dorsal sepal and petals). The only way out of the flower is up along the column, the column has wings which curve around to form a tunnel, a series of hairs on the column act as footholds for the insect as it climbs up along the column. As the insect squeezes along this tunnel it is forced against the sticky rostellum, thus the pollinia becomes attached to the insect and is carried off by the latter as it emerges from the flower. The same insect carries the pollinia to another flower, becoming trapped in the same manner, only this time the pollinia from the first flower are deposited upon the sticky surface of the stigma, thus completing the cross pollination cycle.

Gnats have been observed as the pollination agents for some Pterostylis species. Incidentally, on a sunny day the triggered labellum moves back to its original position after a time of 20 minutes to 3 hours, depending upon the species, and takes longer on dull days.

Caladenia species have been observed by Rogers (3) and Erickson (4) being pollinated by various types of bees. These orchids have a poorly developed column in comparison with many other genera in that the stigma is plate shaped, there is no viscid disc and no caudicle as the rostellum is poorly developed.

The pollinia lies freely in the anther cells, the anther flaps hand freely in front of the pollinia.

Pollination takes place in the following way. As a pollination agent enters the flower it holds the flaps shut, as it moves past the stigma a smear of the sticky substance is picked up, upon withdrawal the anther flaps are drawn apart and the pollinia adheres to the sticky patch on the agent and are drawn from the anthers.

Erickson places the flowers of this genus into roughly three different categories according to the function of the labellum.

continued on page 73.

The Pollination of Orchids. continued

These are as follows;

a) With the simplest as in C. deformis the labellum forms a tube with the column.

b) The second group as well as forming a tube with the column, the labellum has a row of large well developed calli, e.g. C. flava.

c) The last group has a hinged labellum which moves back and forward against the column, e.g. C. patersonii.

Rogers described the pollination of C. deformis by a small native bee (Halictus subinclinans). The bee with pollinia attached landed on the labellum and pushed its way along the tube, exerting pressure to widen this tube, the dense mat of calli serving as a foothold. After a short time it backed out, emerging with the pollinia from this flower, the other had been deposited on the stigma.

In the second group, the row of calli at the front of the labellum have been observed by Erickson as acting as a barrier to prevent insects, entering the tube, that are too small to pollinate the flower. Insects of the right size climb over this fence of calli and on into the tube to perform the act of pollination. The actual agent observed with Caladenia flava was a native bee, (Paracolletes nicholsonii). Other species in this group include Caladenia paniculata, C. unita, C. latifolia and C. reptans.

In the last group the curved labellum is hinged on a claw at the base. The labellum is delicately balanced so that it remains open until the visiting insect has moved almost to the base, when its weight changes the point of balance and the labellum moves forward the column forcing it against the sticky stigma. The fringed edge of the labellum prevents escape and on backing out of the flower it picks up the pollinia on the sticky patch on its back, the centre of balance again changes with the movement and the labellum swings back to its former position, allowing it to escape.

The point of balance is set so that the right pollination agent enters without touching the pollinia and stigma until it closes. Too large an insect, because of the position of balance can become permanently trapped, held prisoner by its own weight. A small native bee (Euryglossa rejecta) has been observed (4) as being the pollination agent of Caladenia filamentosa var. tentaculata.

Edith Coleman (5) indicates that Caladenia dilatata var. rhomboidiformis, and C. barbarossae use sex appeal, she has observed a black and yellow ichneumon wasp (Lissopimpla excelsa) pollinating the former species mentioned, the method of pollination appeared to be that of love making with another wasp.

A similar action has also been noted with Cryptostylis species.

From 1927 to 1933 Edith Coleman (6) (7) (8) (9) (10) published in the Victorian Naturalist, notes on the pollination of Cryptostylis species by insects. This author observed that these orchids exerted a form of sex appeal on a male ichneumon wasp e.g. Lissopimpla excelsa. The wasp was observed to alight on the inverted labellum (the flowers of these species are normally inverted) and immediately back into the flower, remaining in the flower with its abdomen pressed against the labellum. During this process the viscid disc attached itself to the back of the wasp, when the wasp finally left the flower it carried with it the pollinia, caudicle and viscid disc. Microscopic examination revealed that seminal fluid had been discharged by the wasp into the flower, thus confirming the sex appeal of the flower. The next flower this wasp visits receives the pollinia in the stigma during the mating process.

Species observed by Coleman were Cryptostylis leptochila, C. subulata, C. ovata and C. erecta.

A variation of the sex appeal method for cross pollination was observed by A.W. Dockrill with Chiloglottis formificera Fitzg. (14)

A black ichneumon wasp (Lissopimpla excelsa) was seen to alight on the labellum and commence the act of copulation, however its body did not touch the anther, a second wasp alighted on the flower and struggled for a position on the labellum, but even when momentarily on top of the first wasp, the second wasp's body also failed to reach the anther, a third wasp then alighted and all three struggled for a position on the

continued on page 74.

The Pollination of Orchids. continued

labellum. During this struggle the third wasp was momentarily on top of the second wasp, it in turn being upon the back of the first wasp, the pollinia became attached to the head of the third wasp which flew off to another flower on which another wasp was already in position. During the frantic struggle for position, the pollinia momentarily was pushed against the stigmatic surface and adhered to it. Readers will agree that the mere thought of an orchid flower using sex appeal for its pollination is remarkable, but for a flower to need the combined efforts of several insects is amazing to say the least.

A few species of *Thelymitra* have been noted as being self pollinating, not relying upon insects for the transference of pollen from one flower to another. R.D. Fitzgerald (11) in studies on this aspect, covered plants in bud to exclude insects and found that seed was set despite the exclusion of insects. In fact with some plants the flowers did not open and yet still set seed.

The reason behind this lies in the arrangement of the column and the nature of the pollen. The anther lies directly over the stigma and the pollen masses are loose and friable.

In a mature flower, the stigma recurves its thin edges back onto the pollinia behind it, or on the other hand, the pollen masses, being friable, drop onto the sticky stigma directly below and thus the self pollination is completed.

The foregoing descriptions are just a few of the recordings made of the various methods of pollination of Australian native orchids in their natural state and it is hoped that they will stimulate further interest and studies in this fascinating facet of orchid behaviour.

Now we shall investigate the processes involved once the pollinia have been deposited upon the stigmatic plate.

First let us observe the development of the pollen or male agent prior to fertilisation. As the column develops the anther is formed, within which develops a series of mother cells, as maturity progresses these cells divide into four cells called tetrads. Each cell of the tetrad is capable of fertilisation of a seed embryo.

If these cells continue to adhere to each other they are what is termed as a compound pollen grain. There are various degrees of adhesion between these compound grains themselves.

In *Spiranthes* species there is no adhesion, the pollen being powdery. In other genera, groups of tetrads adhere together forming massulae i.e. small pollen masses.

A further development in adhesion is where all the tetrads adhere to form two or more bodies called pollinia. All these various types of pollen aggregates remain intact when germination occurs in the stigmatic fluid.

Next we must look at the ovary development. Within the flower stalk lies the ovarian cavity where seed development occurs. There are three ridges that run the length of the cavity, these we can term as placental ridges, along these ridges small embryo sacs form, within each sac is an egg nucleus, it is this nucleus that must be fertilised.

When pollen is laid upon the stigmatic plate the following changes take place. Many flowers lose their colour and wilt, although some New Guinea *Dendrobiums* retain their flowers in good condition right until the seed pod reaches full maturity. The column about the stigma swells and encloses the cavity in which lies the pollinia. Hormones or auxins are released from the outer covering of the pollen mass, these stimulate the enlargement and growth of the ovary which has been developing as the flower matures. After some hours or days, the pollen germinates and pollen tubes grow through the stigmatic wall down along the column towards the ovary.

It takes quite a while for the pollen tubes to reach the embryo within the ovarian cavity, e.g. 2-2½ months for *Dendrobiums*, 2-3 months for *Sarcanthus*, 6-10 months for *Vandas*, 6 weeks for *Cymbidiums*.

Thus the swelling of the ovary and development of a seed capsule does not necessarily mean that fertilisation has taken place, quite often after 2-3 months the seed pod yellows and drops off, indicating that fertilisation has indeed not been completed. (12)

continued on page 75.

The Pollination of Orchids. continued

Within the pollen tube is a generative nucleus which splits into two sperm nuclei (13), when the pollen tube reaches the ovary cavity, it penetrates the embryo sac and one of the sperm nuclei fuses with the embryo, the other nucleus sometimes fuses with the embryo but generally degenerates before this happens.

Occasionally with some species e.g. Spiranthes sinensis, apomixis occurs. This is the development of an embryo into a seed before the fusion with a sperm nucleus. The seed is generally fertile, yielding plants termed haploids because of their halved chromosome number. Plants from this seed are usually smaller and sterile and have only the characteristics of the mother plant.

Polyembryony can also occur, this is the formation of two or more embryo from one egg cell. Several plants developing from what is a single seed. Once the embryo is fertilised, rapid cell division and growth takes place, the end result being a mature seed.

Unlike most other plant seeds orchid seeds have little or no food reserves. Burgeff in 1936 (13) observed that only a few small cavities containing oily material seemed to be the only food reserves held in the seed. Thus a mature seed must find a place with an adequate food supply on hand in order to successfully germinate, this in nature is usually rather difficult and is one of the main reasons why so few orchids are found in nature and probably why such an abundance of seed is developed in a pod.

It is hoped that the above descriptions stimulate many readers to investigate for themselves some of the fascinating aspects of orchid development.

BIBLIOGRAPHY

1) Life History of Pterostylis, O. H. Sargent, Annals of Botany, Vol.23.
2) Pollination of Pt. Acuminata and Pt. falcata, E. Coleman, Vict. Nat., March 1934.
3) Pollination of Caladenia deformis. R.S. Rogers, Trans. Roy. Soc. of South Australia, Vol. 4.
4) Orchids of the West. R. Erickson.
5) The Pollination of Some Western Australian Orchids. E. Coleman, Vict. Nat. Feb. 1930.
6) Pollination of Cryptostylis leptochila. E. Coleman, Vict. Nat. May 1927.
7) Pollination of Cryptostylis leptochila. E. Coleman, Vict. Nat. April 1928.
8) Pollination of Cryptostylis subulata. E. Coleman, Vict. Nat. June 1933.
9) Further Notes on Cryptostylis ovata. E. Coleman, Vict. Nat. Vol. L.
10) Pollination of Cryptostylis erecta. E. Coleman, Vict. Nat. April 1930.
11) Australian Orchids. R.D. Fitzgerald.
12) Embryo Culture. Malayan Orchid Soc. Bull. 17.6.62.
13) Orchids a Scientific Survey. Carl L. Withner.
14) The Cross Pollination of Chiloglottis formicifera Fitzg. A. W. Dockrill, Austr. Orch. Review, March 1936.

R.J. Curtis, 11 Tudar Street, Sutherland. N.S.W.

Culture of Epiphytic Orchids. continued

What must be something of a record in longevity, under cultivation, was noted in Alec Robertson's orchid collection, at Hamilton, N.S.W.

A Dendrobium superbiens, originally affixed to a slab of tree fern, has been in his possession for more than 34 years.

The glasshouse is heated and the plant grows luxuriantly among Alec's exotic plants. Very little evidence of the original tree fern is to be seen, as the plant is a mass of roots. Perhaps you can cite a similar example.

W. H. Murdoch, Robey Road, Coal Point. 2N. N.S.W.

BULBOPHYLLUM RADICANS F.M. Bail.

S. Clemesha.

Bulbophyllum radicans was first described in Queensl. Agric. J. 81 (1897) and subsequently in Queensl. Fl. V. 1536 (1902). Bulbophyllum radicans has always been regarded as rare and somewhat a mystery. This is the result of confusion which appears to have commenced late last century when F.M. Bailey confused Bulbophyllum nematopodum F.v. Muell. with it. A brief table of the more conspicuous differences is set out below.

Bulbophyllum radicans	Bulbophyllum nematopodum
Pseudobulbs about 1 cm. high closely appressed to a pendulous rhizome, spaced up to 1 cm. apart and never massed together.	Pseudobulbs about 1.5 cm. high, crowded, massed together and never on a pendulous rhizome.
Leaves sessile or nearly so to about 6 cm. in length (in my specimens) and always hanging downwards (youngest leaf on a rhizome sometimes an exception).	Leaves to 13 cm. in length (in my specimens). This measurement includes the conspicuous petiole which is 1-3 cm. long. Leaves are erect, slightly reflexed and never hang downwards.
Pedicel about 5 mm. long.	Pedicel about 6 cm. long.
Flower about 5 mm. long	Flower usually more than 1 cm. long.
Distribution: A common north Queensland lowland plant. Uncommon at altitudes above 2,500 feet.	Distribution: Essentially a north Queensland highland plant.

It is difficult to understand how Bulbophyllum radicans and Bulbophyllum nematopodum were confused, yet specimens of Bulbophyllum radicans in the Brisbane Herbarium were labelled Bulbophyllum nematopodum. Other specimens of Bulbophyllum radicans were labelled Bulbophyllum cilioglossum and another bore the correct name. Apparently when Bailey examined a yellow form of the then undescribed species, he erroneously believed to be Bulbophyllum nematopodum, he considered it distinct and described it as Bulbophyllum radicans. Bailey's comparison of the 2 forms of Bulbophyllum radicans and his incorrect use of the name B. nematopodum for one then in Queensl. Fl. appears to have caused Rogers and Nicholls not to recognise their Bulbophyllum cilioglossum (described in Trans. Roy. Soc. S. Austr. lix 204 (1935) as a dark form of Bulbophyllum radicans.

In the three areas where I saw Bulbophyllum radicans growing in abundance, the colour variation was enormous. Dark forms and pale forms grew side by side. The colour varied from red-brown with darker veining to yellow. Yellow to orange forms with varying degrees of darker veining were very common, though the all yellow forms were rare. No form could be considered distinct because of the enormous number of intermediates. Bulbophyllum radicans and Bulbophyllum cilioglossum cannot be considered separate species or even varieties. Bulbophyllum radicans being published some 38 years earlier, must take priority. Bulbophyllum cilioglossum must now be regarded as a synonym for Bulbophyllum radicans.

S.C. Clemesha. 3 Consett Street, Concord West. N.S.W.

NEW MEMBERS:

Mr. R.G. Coveny, 4 Churchill Crescent, Concord. N.S.W.
Mr. N. Cornally, 20 Betts Street, Kempsey. N.S.W.
Miss R. Clark, Box 56, Lakes Entrance, Vic.
Mr. W.S. Paterson, C/- Gympie State High School, Gympie. Qld.

Readers are reminded that all material in this issue of THE ORCHADIAN appearing under the names of A.W. Dockrill, W.T. Upton, R.T. Curtis and S.C. Clemesha is copyright and may not be reproduced without their permission.

EDITOR.

THE ORCHADIAN

August, 1964.

Page 77.
No. 7.

Published by the Australasian Native Orchid Society

Patron: Sir John Hall Best.
Vice-Presidents: Eric Gordon.
J.H. Scott.
Hon. Secretary: W.T. Upton.
Ass.Hon.Sec.: S. Clemesha.
President: W. H. Murdoch.
Recordings: R. Curtis.
Publications: R. Kerr.
Orchadian: M.J. Corrigan.
Treasurer: J. Soiland.

Price: 2/-.

CORRESPONDENCE:
Editor: M.J. Corrigan, 13 Empire Street, Haberfield. N.S.W.
Hon. Sec.: W.T. Upton, 5 Woorarra Avenue, Narrabeen Nth. N.S.W.

SYDNEY BRANCH GROUP MEETINGS.

At the last meeting of the above group, the forty odd members present voted unanimously for a £1 per year group membership fee. The 2/- collected from those present at meetings, having been found inadequate to provide sufficient capital to pay for 12 months advance booking fee for a permanent meeting place.

Sydney Branch Group meetings will be held at The Railway Institute, Chalmers Street, Sydney, at 8 p.m. as follows: September 4th Room 8, October 8th Small Hall. November 12th Small Hall.

YOUR COUNCIL AND YOU.

Eric Gordon.

The Oxford English Dictionary defines democracy as, "Government by the people; that form of government in which the sovereign power resides in the people and is exercised either by them or by OFFICERS ELECTED BY THEM".

Unfortunately it has been proven in democratic countries (including our own) that it is necessary to compel the people to elect these officers by making it illegal not to exercise the privilege of the ballot. Cynics still feel that these officers are not elected by the wishes of the people, but by the activities of the militant minority who by their publicity, pleadings, etc. sway the thoughts of the apathetic majority. This situation can of course be much more so in a Society such as ours, where membership is widespread and there are small groups of members who could become very active and by sticking together, obtain control of the whole Society. In an effort to prevent this occurring, your present Council has provided stamped addressed envelopes in which you may return your ballot paper. Council urges you to make use of these, to exercise your privilege to elect your new Council - fill in the ballot paper NOW and post it as soon as possible.

Eric Gordon, 263 Goulburn Street, Sydney. N.S.W.

MEMBERSHIP FEES ARE NOW DUE FOR RENEWAL.

Members are reminded that subscriptions are now due, whilst many have forwarded their dues, we still have a considerable number outstanding. The active working of your society can only be maintained by prompt renewal, enabling a continuity of publication of The Orchadian and a furtherance of the plans of the society.

Forward your cheque to John Soiland, 55 Iris Street, Frenchs Forest. N.S.W.

ANNUAL GENERAL MEETING - 12th September, 1964.

Meeting to commence at 2 p.m. at the Y.W.C.A., Liverpool Street, Sydney. A full resume, including Auditors report will appear in the October issue of The Orchadian. It was suggested by some members that the election of Council should take place at this meeting, however, most agreed that this was impossible when it was pointed out that under such circumstances a minority would be electing the Council.

NATIONAL HERBARIUM
LIBRARY
ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
10 OCT 1966

THE "RUFOUS GROUP" OF PTEROSTYLIS - *Pterostylis boormanii* Rupp.

J.A.P. Blackmore. .

In October, 1906 the discoverer of this orchid, after whom it was later named, collected a number of plants which were deposited in the National Herbarium at Sydney. At some stage they were examined by Dr. R.S. Rogers, the then leading authority on Australian orchids, and were endorsed by him as an undescribed species. When Rev. H.M.R. Rupp published his Orchids of N.S.W. in 1943 he published the species working from this pressed material.

However, two years later he received a considerable quantity of fresh material from G.W. and P. Althofer from Guntawang and Dripstone in the central west of N.S.W. Based on this fresh material he published a revised description in the Victorian Naturalist page 159.

This description supersedes the earlier description which is erroneous in some particulars and should now be disregarded. This description is as follows:

> "A sturdy plant 5-15 cm. high, with 4-7 radical leaves, ovate to oblong, shortly petiolate or almost sessile, about 2 cm. long. Cauline bracts 2, closely appressed. Floral bracts rather large with acuminate or almost filiform points, at least 2 cm. long. Flowers 2-7, relatively large, deep red-brown with translucent spaces, on slender pedicels. Galea deeply cucullate, with a filiform upturned point 10-14 mm. long. Dorsal sepal nearly 2¾ cm. long round the curves, with a translucent space on either side between the dark median ridge and the dark inflated marginal portions. Lower sepals very large, connate for their basal thirds, about 3 cm long and 1½ cm. wide across the united part, abruptly deflexed near the base, divergent from the termination of their union, suddenly narrowing anteriorly into filiform points about 1¾ cm. long, the points curving variably; both sepals conspicuously ciliate along their outer margins from the base for about a third of their length. Petals transparent, the acute apex situated at the base of the filiform points of the galea. Labellum very small, thick and fleshy, very irritable, on a claw half its own length, linear- to ovate-oblong, narrowing anteriorly, about 5 mm. long, concave above, channelled below, densely glandular-pubescent at the obtuse, or nearly acute or minutely emarginate apex; beset along the lateral margins with 4 to 8 long equal white setae; base slightly gibbous, quite glabrous or with 2 or 3 rather short setae, or with 2 clusters of still shorter ones; a few setae sometimes at the base of the channel on the under surface. Column about 16 mm. long, much curved; the wings devoid of upper lobes and often quite lobeless and square, or with short lower lobes; densely ciliate along the margins. Rostellum almost obsolete. Stigma very conspicuous, broadly winged, the wings sometimes angular."

This description agrees well with the specimens examined by me and I would make the following comments.

a. Rupp refers to the considerable variation in the details of both labellum and column. There certainly is some variation but of a relatively minor character such as will be found in most species of *Pterostylis*. Indeed the overall impression gained by viewing a considerable number of species from at least four localities is of the consistency in the appearance of the specimens.
b. Some single flowered specimens may be found.
c. The filiform point to the galea and dorsal sepal is not always upturned, although generally so.
d. The rostellum in specimens examined and as illustrated was relatively prominent.
e. The shape of the labellum could perhaps be better described as bluntly lanceolate.
f. The prominent cilia on the lower sepals are rather unusual in character, appearing rather like elongated glandular structures than hairs. They appear in detail G of the illustration.

In a note in the Victorian Naturalist reviewing H.M.R. Rupp's "Orchids of New South Wales" Messrs. W.H. Nicholls and J.H. Willis stated that it appeared to them that *P. boormanii* was in fact the true *P. squamata*. As Nicholls does not list *P. boormanii* in the key to the species in

continued on page 79.

The "Rufous Group" of Pterostylis - Pterostylis boormanii Rupp.

continued.

part 3 of volume 1 of his "Orchids of Australia" he presumably maintained this view. (The Rufous Group were to be dealt with in part 5 of Nicholls great work, which, unfortunately, has not been published. H.M.R. Rupp was certainly aware that the species was close to P. squamata and with the original description he published a table setting out what he regarded as the distinguishing points. Unfortunately if reference is made to the description above it will be seen that most of these points no longer stand. Certainly a reference to the illustration of P. squamata in R.D. Fitzgerald's "Australian Orchids" (Volume 1 part 6) shows a considerable similarity between the details of the column and the labellum. However, the fact of similarity between labella, whilst of considerable importance in the group is not by any means conclusive (c.f. P. revoluta and P. truncata). Obviously the question of the specific distinction between P. squamata and P. boormanii depends equally on a true definition of P. squamata which will be considered in a later issue. In the meantime, on the present evidence available, the writer is of the opinion P. boormanii is a valid species. Apart from the records at Peak Hill, Guntawang and Dripstone, mentioned earlier, it has been collected from three localities in the upper Goulburn Valley (an interesting area which, whilst on the coastal side of the Dividing Range is much more like the Western Slopes in climate and character) and in 1963, W. Brinsley collected it in considerable numbers in the Cowra and Dubbo district. October appears to be the usual flowering month.

John A. P. Blackmore, 25 Holden Street, Ashfield. N.S.W.

A New Combination For A Small North Queensland Epiphyte.

continued from page 64, ORCHADIAN No. 6. A.W. Dockrill.

The genus BULBOPHYLLUM Thou. is characterised by having distinct pseudobulbs, of simple structure, scattered, either close together or distant, along the rhizome, each bearing a single leaf at its apex; the peduncle arises from the rhizome, either beneath the pseudobulb or from another node of the rhizome. There is no need to treat the floral details at great length in this article, sufficient to say that the column is distinctly winged and the anther and pollinia very small. In the genus DENDROBIUM Sw. the growth is sympodial, each branch of the sympodium being terminated by a pseudobulb (either short or very tall) of complex structure, which matures before new growth commences. The peduncles arise from either at or near the apex of the pseudobulb or from nodes along the apical half of the pseudobulb but never from the rhizome (sympodium). The column is not distinctly winged but has 2 short, erect, tooth-like projections at its apex and the anther and pollinia are of moderate size.

In D. toressae the growth is sympodial, typical of the genus Dendrobium. The leaves have the appearance of being sessile on the rhizome (sympodium) but actually the base of the leaf is a vestigial pseudobulb and the peduncle arises from the apex of this and through the cavity of the leaf and does not arise from the rhizome. The column is typical of Dendrobium with its 2 short tooth-like apical projections and anther and pollinia of moderate size.

A.W. Dockrill, 11 Balzer Close, Edge Hill. Cairns. Nth. Qld.

DENDROBIUM DELICATUM.

Murray. J. Corrigan.

The Editor would like to hear from members who are in a position to supply flowers from forms of D. delicatum they may have. Two of our members have been working on a paper for The Orchadian for over a year and would greatly appreciate assistance. If you can help, advise me at once;

1. Number of forms available.
2. Approximate date of availability.
3. Unusual forms available.

You will realise that our artist would be unable to cope with all the specimens at once and I shall endeavour to schedule their delivery.

A NEW SPECIES OF DENDROBIUM FOR N.S.W.

L.I.Cady.

DENDROBIUM SUFFUSUM Sp. nov.

Planta gracilis, erecta. Pseudo-bulbi numerosi, graciles, striati, 20, 25 cm. alti. Folia 4 lanceolata 10-12 cm. longa, 20-30 mm. lata, decurva. Racemus usque ad 10 cm. longus. Flores 3 ad 7 colore, albo et paulum-purpurato ac roseo admixto maculossimi et suffusi. Sepalum dorsale oblongum - obtusum, 13 mm. longum, 5 mm. latum. Sepala lateralia oblonga - acuta. Calcar obtusum. Petala lanceolata - obtusa. Sepala et petala colore violaceo punctata ac suffusa. Labellum tri-lobatum, lobi laterales erecti, obtusi. Lobus medius late-acutus, mucronata. Lamina cum 3 lineis elevatis. Columna brevis lataque. Anthera parva.

Plant slender, erect. Pseudo-bulbs numerous, slender, furrowed, 20-25 cm. high. Leaves 4 lanceolate 10-12 cm. long. Flowers 3 to 7. Colour white heavily spotted and suffused with deep mauve-pink. Dorsal sepal oblong-obtuse 13 mm. long, 5 mm. wide, lateral sepals oblong acute, spur obtuse. Petals lanceolate-obtuse. Sepals and petals spotted and suffused mauve-pink. Labellum trilobed, lateral lobes erect, rounded, mid-lobe broad acute, mucronate, lamina with three ridges. Column short and broad. Anthers small.
North Brother Mountain. Laurieton area N.S.W. per Mr. A. Willows, 9th September 1961.
The author's plant came from a large plant that was collected on North Brother Mountain. The flowers of this species are extremely handsome, being pure white inside with the spots and suffusions of mauve-pink on the exterior surface only.
The plant somewhat resembles a small Dendrobium gracilicaule F. Muell. with its slender stems, while the flowers resemble in shape Dendrobium kingianum Bidw. but the combination of the two features in the one plant removes it from either of the two abovementioned species. The author would like to express his thanks to Mr. A. Willows of Laurieton for the plant material and notes on the type area. Also to Mr. A. Craig for the Latin description and Mr. C.K. Ingram. The type material is housed in the N.S.W. National Herbarium Sydney, also Herbarium of L.I. Cady. No. 1468.

L.I. Cady, P.O. Box 88. Kiama, N.S.W.

COUNCIL NOTE REGARDING DENDROBIUM SUFFUSUM Cady

The Council of this Society have accepted publication of the original description of the above new species, although doubt exists among some modern taxonomists as to its validity as a species. Whereas early botanists were prepared to accept as a new species, a plant that occurred infrequently, the modern botanist with his greater field of knowledge, much of which has been handed down by the earlier gentlemen, is far more cautious in accepting a species whose occurrence is only known to be casual.

SLIDE LIBRARY

The selection committee has viewed over 2,500 slides so far and has made a preliminary selection, from which the final slides will be made. I hope to be able to give a full list in the October issue of The Orchadian.

A RARE RECORDING - PRASOPHYLLUM RUPPII Rogers

M.J. Corrigan.

In the autumn of 1963, whilst wandering in search of Pterostylis daintreana near Sydney's Royal National Park, I discovered a Prasophyllum which, although finished flowering, appeared to be different from any I had previously seen. The area was re-visited this year in company with Steve Clemesha and we were fortunate in locating specimens in flower. These were macro-photographed and several flowers stored in alcohol for despatch to that Prasophyllum authority, Leo Cady of Kiama. Much to our delight his reply informed us that we had located Prasophyllum ruppii. The colony is well out of sight and we hope, safe from the vandals hand.

KEY TO PLATES:

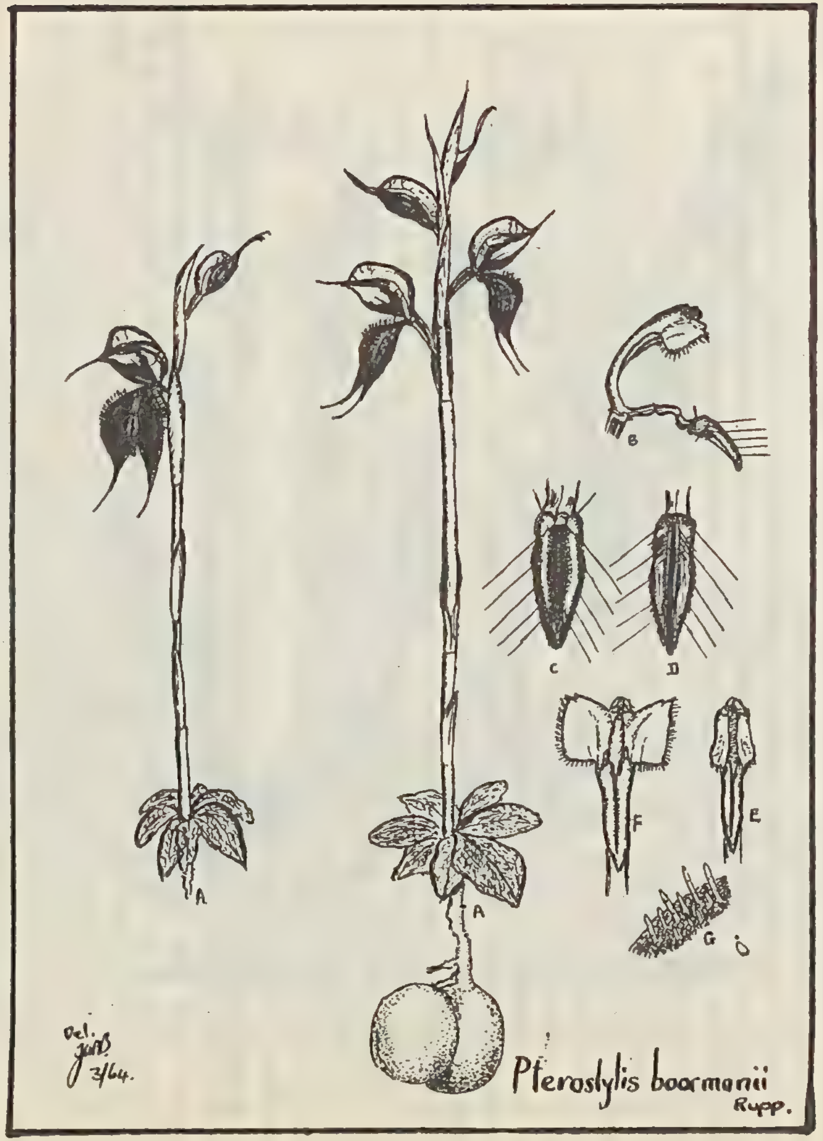
Pterostylis boormanii Rupp.

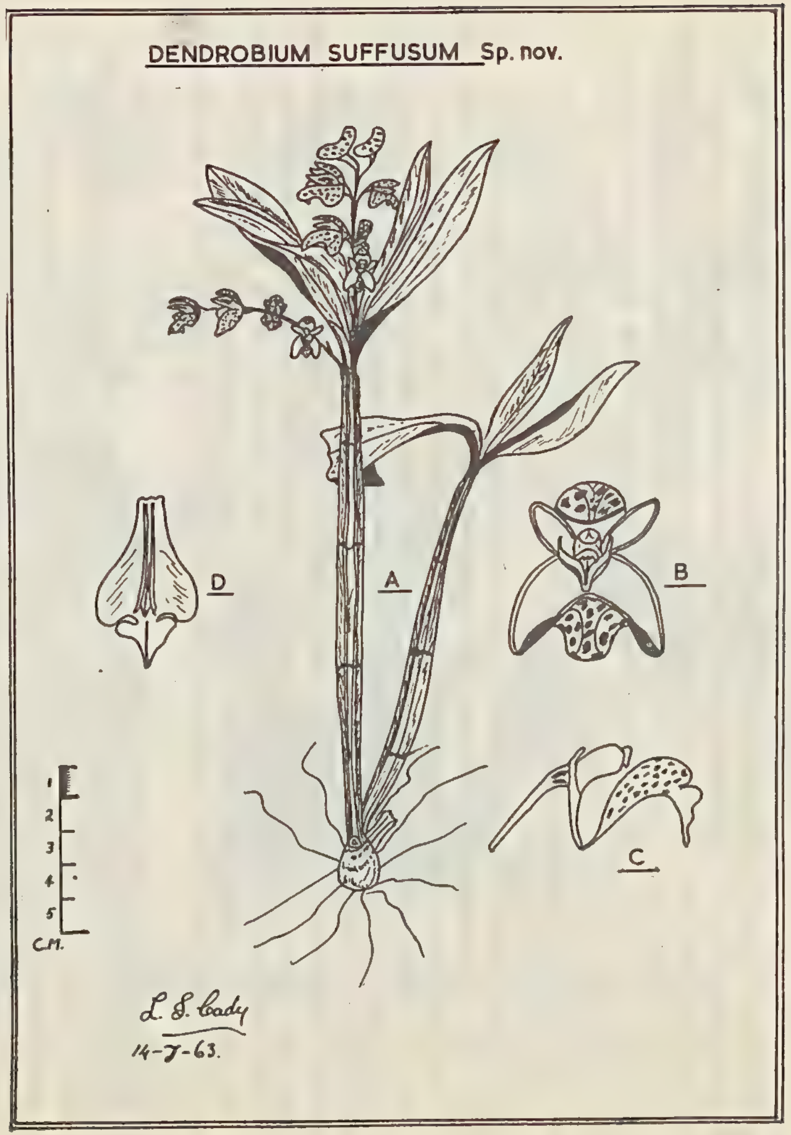
A. Typical specimens.
B. Column and labellum from side.
C. Labellum from the top.
D. Labellum from the bottom.
E. Column from the front.
F. Column with wings flattened out
   to show the winged stigma.
G. The "Cilia" on the lower sepals.

KEY TO PLATES:

Dendrobium suffusum Sp. nov.

A. Plant natural size to scale.
B. Flower from front approx. X 3.
C. Column and labellum from side X 5.
D. Labellum from above X 8.





DENDROBIUM MONOPHYLLUM F. MUELL. AND DENDROBIUM SCHNEIDERAE BAIL.

W. T. Upton.
S. C. Clemesha.

In Australia there are some 50 odd members of the genus *Dendrobium* and of these there are some with very diverse habits and flowers. We will endeavour to bring before you two species that are very distinct from all the others, namely *Dendrobium monophyllum* and *D. schneiderae.* We would, however, hasten to add that the North Queensland highland species *D. carrii* Rupp et White could be confused with these two except that it can be readily distinguished from *D. schneiderae* by its larger size and from *D. monophyllum* by its having pseudobulbs spaced up to 2" apart and its normal production of two leaves to the pseudobulb. *D. carrii* further differs from the subject species in its flowering habit. Its common production of 2 racemes of flowers from each pseudobulb and the fact that racemes are produced from the same pseudobulbs on two or three successive years can be compared with *D. monophyllum* and *D. schneiderae* which generally flower but once from the pseudobulb. (The authors have seen a plant of *D. monophyllum* with one fully open raceme and another coming.) The flowers of *D. carrii* have more pointed segments than *D. monophyllum* and are white with an orange labellum. It is felt that mention should be made of the flowers of *D. agrostophyllum* F. Muell., as they are similar to those of *D. monophyllum* but are generally larger. The habits of these 2 plants are, however, entirely different.

DENDROBIUM MONOPHYLLUM F. MUELL.

This species is much larger and more common than *D. schneiderae* and its habit varies greatly depending on growing conditions.

The pseudobulbs are commonly conical, conspicuously ribbed and on a creeping and branching rhizome. Some specimens we have seen have stouter pseudobulbs and this gives the appearance of overcrowding. The normal height of the pseudobulb is approximately 1" although the authors have seen considerably larger ones.

The name monophyllum means - with one leaf, but this is rather a misnomer here as pseudobulbs with 2 leaves are fairly common. The leaves are thin in texture though fairly hard, shiny and smooth. They have a prominent midrib and are up to 4" long or sometimes longer.

The flowering period of this species is very variable. It appears to be mainly in the Spring but one of us (W. T. Upton) has a plant that has flowers on it almost all the year round. This feature is not uncommon. The flower spike is erect, up to about 6" high, and bears up to about 20 flowers with ten (10) being about the average. The flowers are entirely green yellow to dull yellow and are more or less nodding. The general appearance of the raceme reminds one of a Lily of the Valley and it is from this fact that it derives its common name. To our knowledge it has not been recorded much further south than the Clarence River though there have been reports of its existence in the Gloucester district. It is not uncommon both in the coastal swamps and on the ranges of South Queensland. In North Queensland, where it is fairly common, it is confined to the highlands.

D. monophyllum shows a marked preference for exposed positions like cliff faces and the upper branches of trees. In North Queensland it grows with the less common *D. carii* and other North Queensland highland species such as *D. adae* and *D. agrostophyllum*. At one headland on the South Queensland Coast plants of *D. monophyllum* grow in a position where they receive continual salt spray.

One final interesting point about this orchid is that it is not uncommon for new pseudobulbs to grow over the top of older ones, thus building up several layers of rhizomes.

DENDROBIUM SCHNEIDERAE BAIL.

This charming miniature *Dendrobium* is superficially similar to *D. monophyllum* (particularly when compared with *D. monophyllum* in its immature state) but smaller. The pseudobulbs are crowded together and commonly ½" high, although larger pseudobulbs are frequently seen. Unlike *D. monophyllum* two (2) leaves are the general rule, though 1 and 3 leaved pseudobulbs are far from a rarity. The leaves are approximately 1" long. This species normally flowers in late summer and autumn. The raceme is not erect as in *D. monophyllum* but arched and generally up to 3" long. Well grown

continued on page 84.

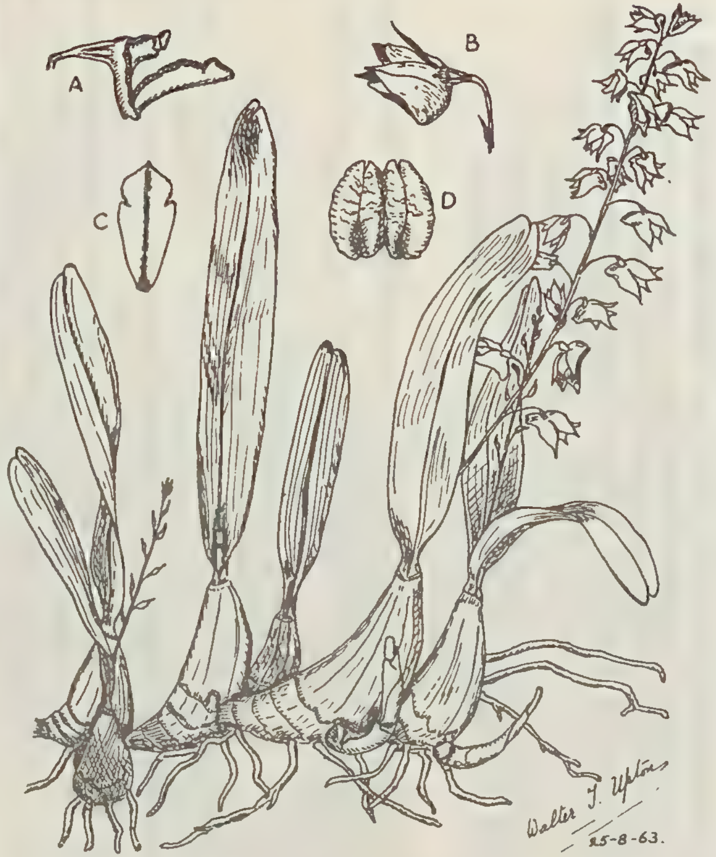
KEY TO PLATES:

Dendrobium schneiderae Bail.

A Flower from rear three times natural size.
B Flower from side three times natural size.
C Pollinia greatly enlarged.
D Column from side nine times natural size.
E Flower from front three times natural size.
F Flower from side with sepals and petals removed approx. 4 times natural size.
G Labellum pressed flat 4½ times natural size.
H Column from front 9 times natural size.
Plant 1½ times natural size.
a anther, r rostellum, s stigma.

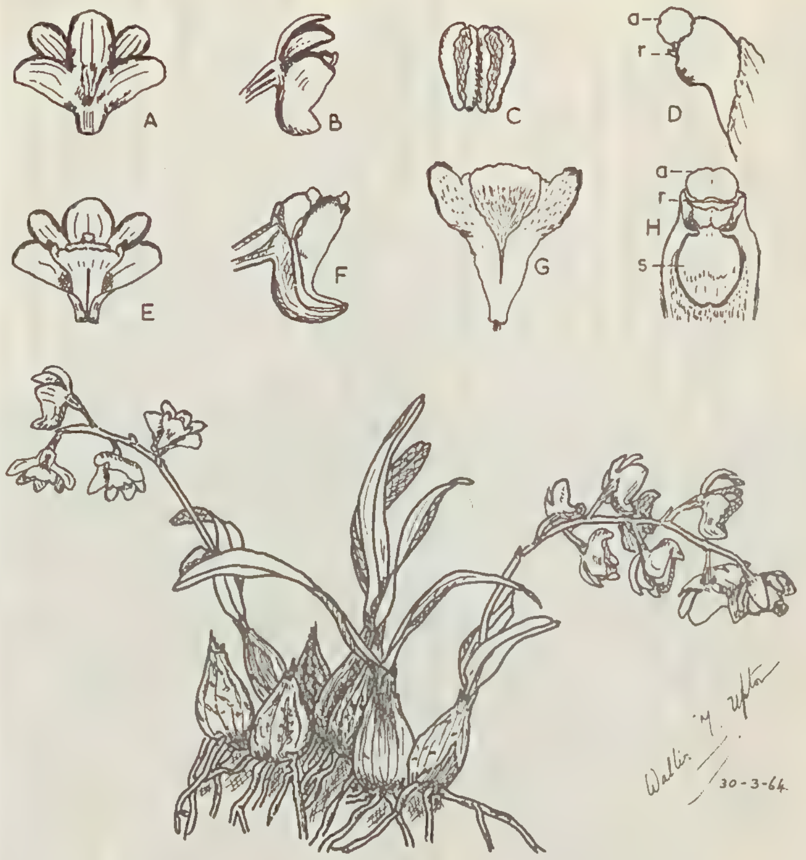
Dendrobium monophyllum F. Muell.

A Flower from side with sepals and petals removed. twice natural size.
B Flower from side 1½ times natural size.
C Labellum pressed flat 3 times natural size.
D Pollinia greatly enlarged,
Plant approx 3/4 natural size. (North Queensland plant).



Walter T. Upton
25-8-63.

Dendrobium monophyllum F. Muell.



Walter T. Upton
30-3-64

Dendrobium schneiderae Bail.

established plants produce up to 20 flowers on the raceme.
The flowers which are large in comparison to the size of the plant are a waxy cream yellow to yellowy green and neatly outlined to a varying degree with dark maroon with the exception of the lower half or the lateral sepals. The stigmatic cavity is also outlined in maroon. All the segments are round compared to the noticeably pointed segments of D. monophyllum. The labellum is very broad at the apex and bears a prominent callous plate. The column foot is prominently curved. The compact habit, comparatively large waxy flowers, very attractively outlined with maroon, make this a most desirable species to own. Unfortunately D. schneiderae is fairly rare, being mainly confined to the Macpherson Range on the border of Queensland and N.S.W. Only one of the authors (W.T. Upton) has found it in its natural habitat, where it grew on Red Bean trees (Dysoxylum muelleri). In conjunction with it grew Dendrobium monophyllum, D. beckleri, D. gracilicaule, D. teretifolium, D. tetragonum, D. speciosum var hillii, Bulbophyllum bracteatum, B. aurantiacum, B. exiguum, and Cymbidium suave.
Many native orchid enthusiasts have remarked on their finding this species growing with Bulbophyllum bracteatum which is another seldom found beautiful native orchid chiefly confined to the Macpherson Range.
D. schneiderae grows on a number of hosts including the hoop pine, (Araucaria cunninghamii), and as with many other species of the genus Dendrobium it has also been found growing on a rock.
There is a recording of this species in the Sydney Herbarium from the Eungella Range near Mackay. This specimen produced a raceme a foot long with 30 flowers. The individual flowers did not appear to differ from the type form. This plant is known as D. schneiderae var major Rupp.
Both D. monophyllum and D. schneiderae are often slow to establish themselves in cultivation and in comparison to D. kingianum are slow growers. Although numerous methods of cultivation are used the authors consider and have had more success when attaching plants to ti-tree limbs. It is most important that these plants are tied tightly when fixed to their hosts as they are slow to establish themselves. They require excellent ventilation, plenty of light and frequent watering, though it is essential that plants dry out between waterings.

S.C. Clemesha, 3 Consett Street, Concord West. N.S.W.
W.T. Upton, 5 Woorarra Avenue, Narrabeen North. N.S.W.

NOTES ON BOTANICAL TERMINOLOGY. Continued.

Eric Gordon.

The arrangement of leaves is known as Phyllotaxis and there are two main arrangements.

RADICAL	When they appear to rise from the roots.
CAULINE	When borne on the stems and branches.

Most leaves on trees and larger plants are arranged in the following ways.

ALTERNATE	This is the commonest arrangement and in itself has variations which I will not deal with here.
OPPOSITE	Leaves in this arrangement arise two from each node and opposite each other. If the pairs of leaves are borne at right angles to each other (consecutively) they are
DECUSSATE	and show four rows along the stem, if only two rows are formed they are said to be
SUPERPOSED	
VERTICILLATE	leaves arise three or more equally spaced around the nodes. The best known example to us is probably CASUARINA spp. (She-oak).
DISTICHOUS	leaves arise consecutively from opposite sides to form two rows as in OBERONIA spp.
TERMINAL	leaves grow at the end of the stems or pseudobulbs as in some DENDROBIUM spp. D. gracilicaule (stems) D. monophyllum (pseudobulbs).

continued on page 85.

Notes on Botanical Terminology. continued from page 84.

BASAL	leaves appear to arise from the base of the plant (not the roots). *DIURIS* spp. *ORTHOCERAS STRICTUM.*

The arrangement of veins in leaves is called VENATION and is of two primary types

RETICULATE	veins anastomose (run together) to form a network. This is a characteristic of Dicotyledons - Reticulate leaves may also be
UNICOSTATE	when there is a midrib with the lateral veins usually spreading obliquely and curvedly from it (The commonest form).
MULTICOSTATE	veins occur when there are two or more equally prominent veins arising from the base from which the other veins spread.
PARALLEL	venation is the arrangement in which the veins very rarely anastomose and are said to be parallel, although this is not always so in a geometric sense. Monocotyledons, of which Orchids are a part, are characterised by parallel venation.
UNICOSTATE and MULTICOSTATE	are terms used in the same sense as for reticulate venation.
CONVERGENT	venation is that where a number of veins diverge slightly from the base and converge at the apex of the leaf. Even though the mid nerve is often more prominent, as the others do not arise from it, the leaves are not unicostate.
RIBS or NERVES	are the usual terms used to describe the principal veins.

The types of PLANT CLOTHING are many and varied. There are many descriptive names for the various types and the following are the most used ones.

GLABROUS	where no hairs at all are present.
GLADRESCENT	describes an almost glabrous condition.
GLAUCOUS	is the term for a pale bluish-green colour often associated with a waxy coating or bloom.
PRUINOSE	when covered with a waxy coating or bloom. (*Corybas pruinosus*).
VISCID	sticky or clammy, usually from secretions of glands on the leaf surface, or sometimes glandular hairs.
PILOSE	a thin sprinkling of rather long, weak, simple hairs on the surface is described by this term.
HISPID	more densely covered with fairly thick, rather stiff hairs, rough to the touch.
SETOSE	with very stiff, erect, rigid hairs.
HIRSUTE	when the hairs are dense and not so stiff.
PUBESCENT	with short, soft, downy hairs.
STRIGOSE	hairs which all point in one direction and moderately short and stiff.
LANATE or LANUGINOSE	long and loosely matted hairs like wool.
TOMENTOSE	like lanate but short, soft and cottony. These are both
FLOCCOSE	if the tomentum is readily detached.
SILKY	when the hairs are fine and soft to the touch like silk.
FARINOSE or MEALY	with very short, white hairs that come off like dust or meal.

continued on page 86.

Notes on Botanical Terminology. continued from page 85.

HOARY or CANESCENT	when the hairs are very dense, short, almost invisible to the naked eye and give a whitish or greyish look to the surface.
LEPIDOTE	describes a scaly surface.

In addition to the terms describing the arrangement, size and strength of the hairs there are terms which describe the hairs themselves.

SPREADING	hairs point out from the surface.
APPRESSED	hairs lie along the surface.
SIMPLE	hairs are unbranched.
BRANCHED	hairs are stellate (star shaped) bifid etc.
SQUAMATE	hairs are scaly, usually attached by their centres.
GLANDULAR	hairs are of many types, the commonest having a club-shaped (clavate) tip which secretes a sticky or oily substance.
STINGING	hairs contain an irritant and usually have a swollen base.

Surfaces themselves can be described by the use of the following terms.

SMOOTH	when lacking any protuberances.
SCABROUS	when rough to the touch.
STRIATE	with parallel longitudinal lines.
RUGOSE	when wrinkled, (with depressions or raised irregular lines.)
SULCATE	when furrowed.
COSTATE	when ribbed.
PUNCTATE	when pitted with small depressions or translucent glands.
TUBERCULATE or VERRUCOSE	when there are small blung wart-like protuberances present.
MURICATE	when the protuberances are pointed and raised but still short and hard.
ECHINATE	similar to the last but longer, sharper, almost prickly.

To be continued..

PRESIDENT'S REPORT.

Ladies and Gentlemen,

In presenting our first Annual Report, I would take this opportunity of expressing our indebtedness to those members to whom we owe so much. Our success to date, and we feel our first year's activities have not been without some measure of achievement, is directly attributable to the untiring efforts of several of our members, who, despite exacting personal commitments, have spared neither time nor effort in furthering our objectives. We are particularly indebted to our Hon. Secretary, Wal Upton. His work prior to the formation of our Society, and his continued contributions of material for "The Orchadian", and his assistance to the Editor, has meant much to our progress and no words of thanks can adequately express our appreciation.

Our Editor, Murray Corrigan, has surpassed our most sanguinary hopes for a publication worthy of our Society, and our thanks to him for his unremitting efforts to maintain a high standard is warmly accorded.

Vice President, Eric Gordon has been a real force. All our Council meetings have been held in Eric's office at no expense to the Society. His generosity in loaning the Society a binocular microscope valued at £200 has facilitated the output of material from the hands of Alick Dockrill, whilst his extensive library of Native Orchid Slides has been made available for duplication, for our library. It may also be recorded that the title of our publication was first suggested by Eric.

Without exception, all members of our Council have been most punctilious in their various spheres.

To enumerate some of our activities:

continued on page 87.

President's Report. continued from page 86.

"The Orchadian" was first issued in August 1963 and a total of seven issues have been produced to date.

Constitutional Sub-Committee formed and the constitution submitted has now been ratified, with only 7 members objecting. Our thanks to Mr. W. Smoothey, for his guidance and valuable assistance in drafting the final constitution submitted to members.

Mr. Frank Wakely, F.A.S.A. appointed Hon. Auditor.

Film Library in process of formation, Eric Gordon and a Sub-Committee have so far viewed 2,500 slides for possible inclusion. A selection of these slides has been shown fifteen times in Societies extending from the Hunter Valley, to Nambour, QLD. by the author.

A number of Orchid Societies and kindred bodies interested in our activities, have affiliated and find "The Orchadian" a worthy addition to their library.

Our steadily growing membership, now standing at 345 includes members from the U.S.A., Brazil, New Guinea and New Zealand.

Mr. J.A.P. Blackmore, Lawyer, of Ashfield, N.S.W. and Mr. A.M. Blomberry, an Officer of the Rural Bank, Sydney, have very kindly consented to act as Election Returning Officers.

In conclusion, we would thank all those contributing suggestions, material for publication or specimens. In this regard, the help afforded by Alick Dockrill is gratefully acknowledged.

On behalf of the Council of The Australasian Native Orchid Society.

William H. Murdoch.
President.

A PRESIDENT'S TRAVELS.

W.H. Murdoch.

About June each year I claim a holiday, not that I normally keep a treadmill in motion, but that it is time to visit a host of orchid growing friends.

This year I was somewhat restricted. It came about this way. Last year we went as far as Cairns, in fact a little beyond, as with Alick Dockrill we had a peep at the Daintree. This time my wife put her foot down. "Nambour is the limit, if you want to go further, then have another trip after we get home". Why all this ?

To the host of friends I have not met, I may explain. I first met native orchids as a schoolboy doing botany, about 1908. Another clue, I recall my twentieth birthday on a spot overlooking the Aegean Sea. This could imply a wheelchair, but far from it. My '54 Spacemaster can still roll off its 350 miles per day with me at the wheel, and do the same again next day. In fact, I've more than 40 years driving and have yet to be "involved". Having reassured you, take a seat and we will be off. First night Glen Innes, to the home of Mike White and good wife who were expecting us. Mike (a member) is a forester and is about to move to Tasmania. More than usually knowledgeable as far as our native orchids are concerned, he also grows a nice variety of the exotics. Here we showed the colour transparencies for the first time. To explain these slides: Our Vice President, Eric Gordon, a photographer with few peers had forwarded me about 700 from which to choose a programme. The 150 I selected were really superlative. In all, I set up the projector nine times in twelve days, and on each occasion the viewers expressed their praise for the photography.

Brisbane for the weekend, with a brief call on another member, Jim McKinney of Sunnyside. Formerly of Eastwood, Jim now has a large nursery close to the well known "Oasis".

Having made many friends at Nambour, we had been programmed some time ago, for their June meeting, and as usual, hospitality, a round of visits, and altogether a good time. On this trip we stayed at Mooloolaba, one of the delightful seaside towns in that area.

The "Maroochy Shire Council" area enjoys possibly the most benign climate in Queensland. Extremely fertile, all tropical fruits abound, Pineapple and Sugar Cane growing are major industries. At Mt. Buderim is Australia's only Ginger factory. All this added to the attractions of the seaside resorts, has everything possible a holiday maker could wish for.

continued on page 88.

A President's Travels. continued from page 87.

What appealed to me most of all however, was the enthusiasm of so many of its residents, in what has been done in conservation for the local Flora and Fauna. Quite a lot has been done, and more is contemplated. I can assure our Maroochy friends that the Australasian Native Orchid Society sincerely congratulates them on what has been accomplished and to wish them success in what they hope to do.

Mt. Tamborine was next on the agenda. It came about this way. Our Editor, Murray Corrigan had holidayed in the area a few months ago. Calling on his way home, (I live 100 miles north of Sydney) he told me of the highlights of his visit. Joe Lightbody, I was informed, had one of the best collections he had seen. Joe in his spare time, is a dairy farmer. If anything "gets me in" it is the whisper of the "best yet", so I had booked in at the Curtis Falls Motel and wrote to Joe. Arriving at the Motel, I was greeted with a message, "come around as soon as convenient - but -- 3 p.m. milking time". Long association with dairy farms (in fact I first saw the light of day on one) I understood exactly. Only for the fact that all dairy farms now have milking machines, I would have been doubly welcome to Joe. Murray was right, for variety and cultural skill I can certainly nominate Joe.

The assembly that night was more than interesting. One of the guests Mrs. H. Curtis, an associate and correspondent of the late Rev. H. M. R. Rupp. Mrs. Curtis brought along some slides taken 40 years ago. Black and white, glass, about 3" x 3" and as interesting as they were unique. Mrs. Curtis certainly knows her orchids, in fact she has at least two "finds" to her credit (Pterostylis hildae).

Our run to the Gold Coast, being very short, gave us several hours to spend with Joe next day. I sensed he was looking me over, but apparently satisfied, asked me if I would like to see something really good - it meant going down a cliff face, but, said Joe, I have a rope. Well I know my limitations and this was not one of them. Furthermore I did not let on to Kit (my wife) that we were going bush. Past experience always resulted in her being two ridges ahead of me and one can't enjoy looking at orchids with the mental picture of your wife scaling a cliff face that I would not entertain. We arrived at the bottom and agreed it was worthwhile. No brothers, no names, this is a reserve and the rangers will stand no nonsense. We arrived home again thanks to Joe's rope and after lunch did the Cedar Falls walk. This is a prepared track skirting cliffs and falls, where numerous orchids can be seen. Corybas, Pterostylis, and Acianthus in flower.Occasionally clumps of Sarcochilus ceciliae and Dendrobium monophyllum, in quite inaccessible spots.

As we had a dinner appointment with Mr. and Mrs. Cleland of Gold Coast Orchids, we had time to go to our Motel at Currumbin before returning to Burleigh Heads.

Some Motels have quite attractive slogans. This one invites you, "For your honeymoon, or your second honeymoon". Our hobby is orchids.

Back to Burleigh Heads, first calling on an old friend and orchid grower of note, Joe Shaw. We were distressed to find him very ill, so beyond a few words of cheer and a wish for his speedy recovery, we moved on.

An interesting inspection of the Gold Coast Orchids nursery prior to dinner and then a disappointment. Mrs. Cleland had journeyed from central Queensland the day before and now could not attend the evening meeting due to family illness. However, time enough to set up the projector and run the transparencies through.

The former Secretary of the N.S.W. Orchid Society, in the person of Gordon Harding, had arranged a meeting at the residence of their President, Mr. Wright. A good roll up and an interesting time for all.

to be continued in The Orchadian, No. 8.

NEW MEMBERS:

Mrs. S. Burton,	9 Tyler Street, Cambelltown, N.S.W.
F.H. Barker,	State School, Long Pocket, Via Ingham, QLD.
J. Lightbody,	Long Road, North Tamborine, QLD.
J.M. Hawkins,	Mowbray Station, Bogantungun, Central QLD.
K.T. Marshall,	55 Hunter Street, West Brunswick, Melbourne, Vic.
Eastern Suburbs Orchid Society, Hon. Sec. .Mr. K. Hearnden,	1A Harbourne Road, Kingsford, N.S.W.
R.W. Spencer,	Rua Sao Luis, 43 - APTO 1302. Sao Paulo, Brazil.

THE ORCHADIAN

October, 1964.
Page 89.
No. 8.

Published by The Australasian Native Orchid Society.

Patron: W.T. Upton.
Vice Presidents: Eric Gordon.
J.H. Scott.
Hon. Secretary: R.G. Napier.
Asst. Hon. Sec.: L. Parker.
President: W.H. Murdoch.
Records Sec.: R.J. Curtis.
Treasurer: E. Marygold.
Editor: M.J.G. Corrigan.
Asst. Editor: S.C. Clemesha.

Price: 3/-

CORRESPONDENCE:
Editor: M.J.G. Corrigan, 13 Empire Street, Haberfield. N.S.W.
Hon. Sec. : R.G. Napier, 12 Laguna Street, Caringbah. N.S.W.
Treasurer: E. Marygold, 627 Port Hacking Road, Caringbah. N.S.W.

SUBSCRIPTION RENEWALS ARE NOW OVERDUE.

Is your sub. paid up ? If not, sit down and write a cheque for 25/- right now, post it to Eric Marygold, 627 Port Hacking Road, Caringbah. N.S.W.

THIS IS THE LAST ISSUE TO BE FORWARDED TO UN-FINANCIAL MEMBERS.

THE ORCHADIAN NOW 3/-.

Members will have noted the increased price at the top of this page and I hasten to add that this increase will not mean higher subs. The P.M.G. regulations under which we post this publication to you at very favourable postage rates, requires that we state the abovementioned price. Issues of The Orchadian sold to outside sources, will of course, pay the new price.

THE PRESIDENT ON TOUR.

Bill Murdoch has accepted an invitation to lecture in Townsville on the 20th. November 1964. Bill would like to hear of meetings which he might visit on his trip north from his home near Newcastle. If you would like to meet him, or have him lecture to your society, write to: Mr. W.H. Murdoch, Robey Road, Coal Point. 2N. N.S.W.

QUESTIONS AND ANSWERS.

In the next issue of The Orchadian we shall begin a column devoted to members queries. Each question will be answered by an expert in the particular field. Send your questions to me at the address given above.

EDITOR.

ELECTION RESULT.

The result of the annual election is as follows:
President : W.H. Murdoch.
Vice-Presidents: Eric Gordon, J.H. Scott. Records Sec.:R.J. Curtis.
Hon. Secretary: R.G. Napier. Asst. Hon. Sec.: L. Parker.
Treasurer : J. Soiland. (Un-opposed). Editor : M.J. Corrigan.
Asst. Editor : S.C. Clemesha.

At the last Council meeting, John Soiland tendered his resignation from the position of Treasurer. Due to increased family responsibilities and business commitments, John is unable to continue his splendid work. We are very fortunate in having obtained the services of Eric Marygold as the new Treasurer, to whom all subscriptions should be forwarded.

WARRINGAH GROUP FORMED.

With approx. 30 persons present (many of whom were new to the Society) the following officers were elected: W.T. Upton - President. E. Moss - Vice-President. J. Evans - Secretary. Mrs. J. Cook-Treasurer. Committee: H. Hall. N. Napper. H. Hirsch. G. Clarke. Meet this enthusiastic group on the 2nd Thursday of each month at 8 p.m. in the Stony Range committee rooms at Dee Why.

NATIONAL HERBA
LIBRARY
ROYAL BOTANIC GA
STH. YARRA, S.E.1

PRESIDENT'S REPORT TO ANNUAL GENERAL MEETING.

Ladies and gentlemen, I take great pleasure in making the following report to members of The Australasian Native Orchid Society.

351 members in first year:-	N.S.W. Sydney area	148.	
	Country	117.	
	Queensland	31.	
	Victoria	22.	
	South Australia	16.	
	Tasmania	6.	
	Western Australia	5.	
	New Guinea	3.	
	New Zealand	1.	
	U.S.A.	1.	
	Brazil	1.	Total 351.

21 Committee meetings of Council, with attendances as follows:-
M. Corrigan 21. W.T. Upton 21. W.H. Murdoch 20. E. Gordon 20. R. Curtis 18. S.C. Clemesha 16. R. Kerr 15. J. Soiland. J. Scott 12.
In addition to Committee meetings, there have been meetings at which the Orchadian has been collated.
Sub-committees were formed. 1. To draft constitution - Messrs. Clemesha, Corrigan, Curtis & Upton. 2. To consider Judging Standards - Messrs. Scott, Clemesha & Gordon. 3. To consider slides suitable for a slide library.
GROUPS: 2 groups have been formed. 1. Sydney - President D.Hardie. Hon. Sec. R. Deane. 2. Hunter Valley - President W.H. Murdoch. Hon. Sec. W. Tuckwell. Two further groups are in process of formation.
ORCHADIAN. 7 Orchadians comprising 88 pages have been issued. Between its pages - 1 New species has been described. 1 New status for a North Queensland orchid. 1 New combination for a north Queensland orchid. 26 native orchids have been illustrated. Cultural notes on both terrestrials and epiphytes. Extracts from letters written by the late Rev. H.M.R. Rupp. Various articles on Botanical nomenclature and terminology. Numerous articles and descriptions of native orchids from well known authors. List of members. Orchadians have been sent to all Australian State Herbariums and to Kew in England. Copies sent to Alex D. Hawkes, in Florida, U.S.A.
The Sydney Herbarium and The Greater New York Orchid Society exchange publications with us.
The Orchadian has been registered at the G.P.O. as a periodical, resulting in considerably reduced postage costs.
LIBRARY. Books and periodicals received: 1. A review of the Genus Dendrobium in Australia - presented by J. Ezzy. 2. Orchids of the West by Rica Erickson - presented by C. Bronger. 3. A Review of the Australian Species of Sarcochilus - presented by J. Ezzy. 4. Index of Orchidaceous Plants - first four parts presented by the author Alex D. Hawkes.
SLIDE LIBRARY. This is at present being compiled, we have at our disposal over 2,000 slides from Eric Gordon and other enthusiasts, from which to select slides for duplication.
RECORDINGS. Numerous recordings have been received and duly recorded.
PRIZE DONATIONS TO O.S. of N.S.W. 1963 Festival £5.5.0 for Champion Australian Native Orchid. 1964 Festival £7 for various classes. The Council is presently considering the best way of assisting interstate shows.
AUSTRALIAN ORCHID COUNCIL. Application has been made for affiliation with this body.
CORRESPONDENCE. Well over 200 letters have been received during the year.
FUTURE PUBLICATIONS. The Council has in hand the possibility of publishing: 1. A List of all Australian native orchids together with their common names and months of flowering. 2. A Review of the Tribe Sarcanthinae, by Alick Dockrill.
MEMBER SOCIETIES. Dungog Orchid Society. Eastern Suburbs Orchid Society. Grafton District Orchid Society. Macleay Valley Orchid Society. Northern Rivers Orchid Society. Newcastle Orchid Society. Proserpine Orchid & Foliage Plant Society. Queensland Orchid Society. S.G.A.P. South Eastern Region. S.G.A.P. Publishing Section. Tweed District Orchid Society. Tasmanian Orchid Society. Toowoomba Orchid Society. Westlakes Orchid Society.

BULBOPHYLLUM AURANTIACUM F. MUELL. AND B. CRASSULIFOLIUM (A. CUNN. APUD LINDL.) RUPP.

S.C. Clemesha & W.T. Upton.

Two very common and widespread species of native orchid are Bulbophyllum aurantiacum and B. crassulifolium. These are two of the succulent leaved species of this varied and interesting genus.

Generally the differences between the two species are :-

1. The leaves of B. aurantiacum are larger and flatter than those of B. crassulifolium.
2. The rhizome of B. aurantiacum is more pendulous.
3. In B. aurantiacum the pseudobulbs are larger and less crowded on rhizome.
4. The flowers of B. aurantiacum are generally smaller and better textured, being waxy in appearance.
5. The flowers of B. aurantiacum are more orange in colour.
6. Sepals of B. crassulifolium are generally more pointed.

B. aurantiacum.

This species generally grows in more open places than B. crassulifolium and is a sun-loving species, whereas the latter prefers shade. It has a wide distribution from the Hunter River in N.S.W., to north Queensland. In N.S.W. it grows both on the coast and the coastal ranges. Near Cairns, Nth. Queensland, one of the authors and Mr. A.W. Dockrill found it growing in Mangrove swamps with Dendrobium discolor, D. rigidum and D. teretifolium var. fasciculatum.

The authors well recall finding this species in an exposed position while climbing through an entanglement of scrub and vine on a precipitous cliff in a dry position near a waterfall in the Gloucester area. It is particularly remembered by one of us (W.T. Upton) as the climb brought him to near exhaustion (together with the editor of this journal, who was with us on this occasion) and the other (S.C. Clemesha) because his wrist-watch fell off and is still at the bottom of the gorge.

B. aurantiacum is extremely variable in plant form and indeed is sometimes difficult to distinguish from B. crassulifolium. We have seen leaves up to 3½" long and whilst the leaves are generally ovate and comparatively flat, forms have been seen where the leaves are practically cylindrical with only a v-shaped groove on the top side.

The plant flowers mainly in summer, though flowers at other times of the year are quite common, and indeed some plants are rarely out of flower. The flowers appear from between the conspicuous bracts on the rhizome, a well flowered specimen is extremely showy with myriads of tiny orange flowers. The sepals are waxy and bluntly conical at the apex, and range from a translucent orange to a darker orange at the tip. The petals are colourless and translucent.

The authors, after inspecting numerous labella from both the species under study are convinced that they are generally identical, although the shape of the labella of both species is variable, as will be noticed from the two drawings.

The drawing of B. aurantiacum shows a labellum with the margins of the basal half extremely hairy, this is not uncommon, and although it was not found in the specimens of B. crassulifolium inspected, it was noticed that short bristly hairs existed around the complete margins of the labella of both species.

This species is attached to its host by fine twining roots. Its hosts include a wide variety of trees and it is quite common on rocks.

B. crassulifolium.

If it is possible, this species is even more variable in plant form than the last. Generally the leaves with their grooved surface remind one of a grain of wheat, hence the common name "Wheat leaved Bulbophyllum". It normally grows in dense masses on both trees (many different species) and rocks, and very often is associated with B. exiguum. It appears to be most at home in deep shaded gullies on large rocks. The authors have seen in the Warringah Shire (Sydney) area, large moss covered rocks completely covered with this species and B. exiguum.

B. crassulifolium has been found at least as far south as Nowra, where as it is fairly common, it can be assumed that the species extends further south still. It is very common on the coast and in the ranges

continued on page 92.

Bulbophyllum aurantiacum and B. crassulifolium. continued

Between Nowra and south Queensland, but as far as we can trace, is absent from north Queensland and we consider that recordings from north Queensland are in fact B. gadgarrense.

As a point of interest, B. gadgarrense differs from B. crassulifolium by:-

1. Its pendulous habit.
2. Its darker coloured and more conspicuous sheathing bracts.
3. The pseudobulbs being ovate, much thinner and longer.
4. The leaf is attached to the pseudobulb by an extremely narrow petiole.
5. The flowers are a brighter lemon-orange and the segments are more open, the flower being generally smaller.
6. The shape of the labellum, see drawing.

We regard B. crassulifolium var. intermedium (F.M. Bail.) Nich. as a synonym of B. crassulifolium after an examination of the type specimen. The flowering period is mainly in spring and to a lesser extent at other times of the year.

As stated in the first species mentioned, the flowers of this species are generally larger, paler and lack the waxy texture, and the sepals are generally more pointed. The petals are clear and translucent, The labellum has already been mentioned above, but one could add that this species has a lighter and more brightly coloured (orange) one. The roots of this species are thin and twining, as are those of the previous species.

General.

There is a Bulbophyllum growing on the Atherton Tablelands of north Queensland, commonly growing in association with B. gadgarrense which has affinities with both the species under study, but, as yet, has not been named. A close examination reveals that the sepals have filiform points and are uniformly pale in colour (pale yellow-green), the labellum is more reflexed than in the species under review in this article, although similar to that of B. gadgarrense, and is a light brown colour. (See new species pp. 94-95. Ed.) The leaf is generally cylindrical with a very narrow groove and pointed at the apex. On reading the foregoing it will be obvious that the floral differences of the four fleshy-leaved Bulbophyllums mentioned are minor and the main differences are in plant form and habit.

The authors are keen to carry out further research and should any member be able to assist us it would be appreciated.

In our opinion, many of the above species are killed through keeping them too dry and although we have tried both ti-tree limbs and tree fern blocks, we consider that the latter is more suitable. We think it necessary to thoroughly soak the tree fern blocks in a weak mixture of lime and water before tying plants onto it. They should be grown in a sheltered shady position in the bush house, although B. aurantiacum can take a greater degree of sunlight.

KEY TO ILLUSTRATIONS:

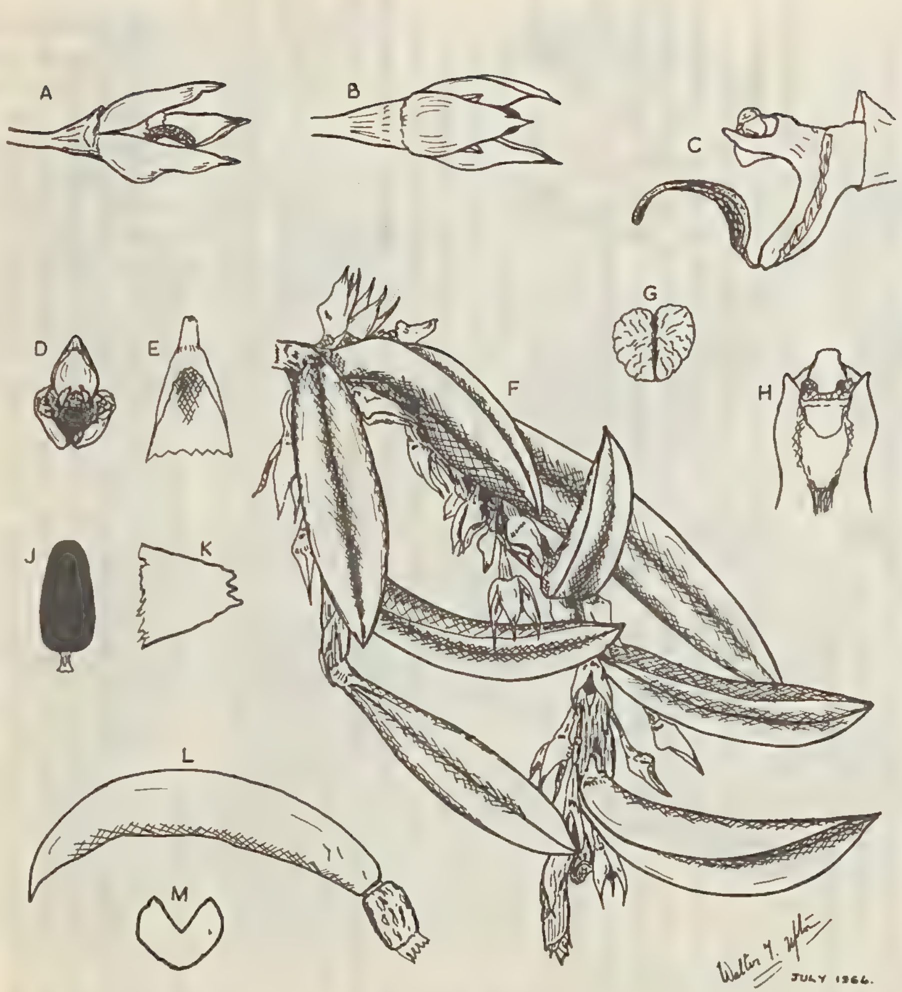
Bulbophyllum aurantiacum F. Muell.

A. Plant twice natural size.
B. Flower from side with sepals and petals removed approx. 12 times natural size.
C. Cross section of leaf twice natural size.
D. Column from front greatly enlarged.
E. Pollinia greatly enlarged.
F. Dorsal sepal 4 times natural size.
G. Petal 8 times natural size.
H. Flower from side 4 times natural size.
J. Flower from above 4 times natural size.
K. Labellum pressed flat 8 times natural size.

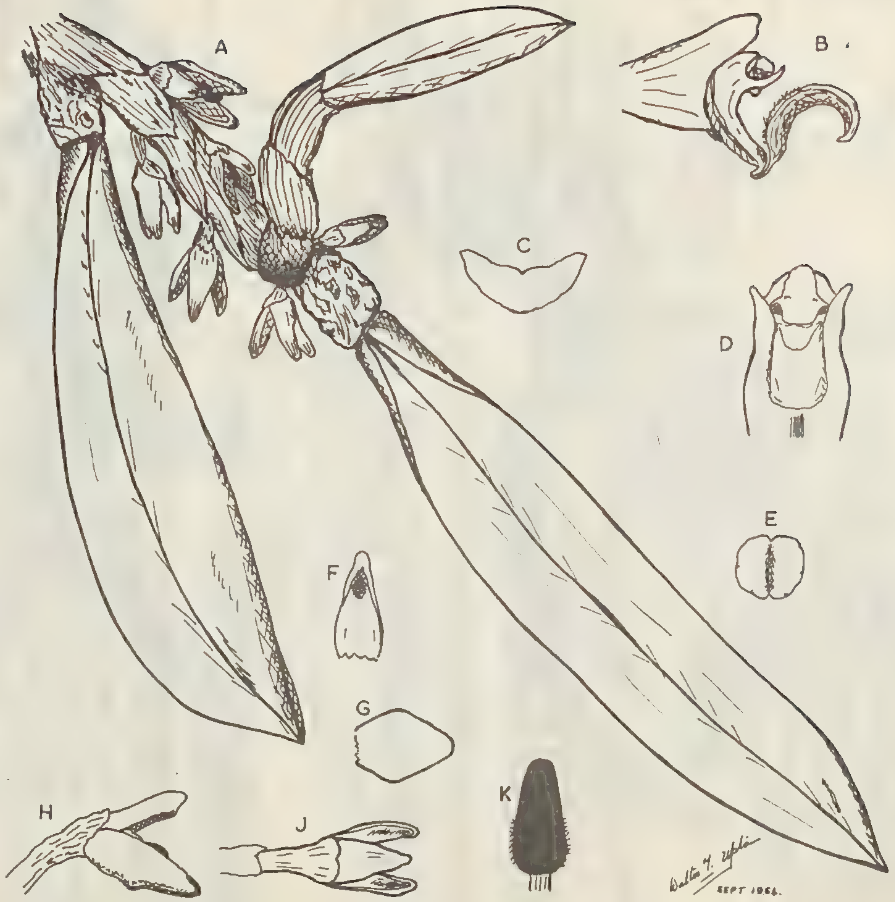
Bulbophyllum crassulifolium (A. Cunn. apud Lindl.) Rupp.

A. Flower from side 4 times natural size.
B. Flower from above 4 times natural size.
C. Flower from side with sepals and petals removed 12 times natural size.
D. Flower from front 4 times natural size.
E. Dorsal sepal 8 times natural size.
F. Plant twice natural size.

continued on page 94.



Bulbophyllum crassulifolium
(A.Cunn. apud Lindl.) Rupp



Bulbophyllum aurantiacum F.Muell.

Bulbophyllum aurantiacum and B. crassulifolium. continued

Key to illustrations:
Bulbophyllum crassulifolium (A. Cunn. apud Lindl.) Rupp.

G. Pollinia greatly enlarged.
H. Column from front greatly enlarged.
J. Labellum pressed flat 8 times natural size.
K. Petal 8 times natural size.
L. Leaf and pseudobulb twice natural size.
M. Cross section of leaf twice natural size.

S. C. Clemesha, 3 Consett St., Concord West. N.S.W.
W.T. Upton, 5 Woorarra Avenue, Narrabeen North.N.S.W.

Brief Extracts from the Rupp Letters to G.W. Althofer No. 10.

7-5-48: Pterostylis truncata Fitzg.:- Mr. Alick Dockrill has had Pterostylis truncata from Mudgee - short stem with a fairly big flower, galea very blunt. (Bullnose Greenhood).

Brief Extracts from the Rupp Letters to G.W. Althofer No. 11.

1-5-48: Pterostylis acuminata R. Br.:- In great abundance around Sydney and eastern slopes of the Blue Mts. Pt. pulchella has a larger flower with beautiful reddish tints, and the labellum is bifid at the tip; also the leaves are on the stem, not in a basal rosette.

A NEW SPECIES OF BULBOPHYLLUM FOR NORTH QUEENSLAND.

A. W. Dockrill.

Bulbophyllum wadsworthii Dockrill, species nova ex affinitate B. gadgarrensis Rupp sed differt sic: foliis majoribus et cylindraceioribus, petiolis nullis, sepalis constrictioribus et acutioribus; lamina labelli breviore et apice non decurvato; columna latiore.
HOLOTYPE:- Ravenshoe, north Queensland (K. Wadsworth 10-10-1962-BRI) DISTRIBUTION:- From the Paluma Range to the big tableland of north Queensland. Seldom found below 2,500 feet.
Plant epiphytic or lithophytic. Rhizomes pendulous, up to 25 cm. long X 2-3 mm. diam., bunched, branching and rooted at the base only, more or less covered by scarious sheathing bracts. Pseudobulbs scattered at intervals of about 15-20 mm. along the rhizome, about 5-6 X 3-4 mm., truncate, prostrate, partly obscured by bracts so as to appear much shorter than they are.
Leaves solitary, sessile, 20-60 X 5-8 X 3-6 mm., slightly tapered towards each end, acute or obtuse, straight or curved, oval in cross-section with a rather shallow "V" shaped longitudinal channel above. Flowers numerous, 1-3 from the axils of many of the bracts, pedicels and peduncles very short so that the base of the flower is often obscured by a rhizome bract; average size of flower about 6 mm. long and about 6 mm. across the apices of the somewhat expanded sepals, colour white or pale cream with a pale orange labellum. Sepals subsimilar, 5-7 X 1.5 - 2.0 mm., suboblong or subdeltoid in the basal half, thence rapidly constricted into long slender acuminate points; lateral sepals joined at their bases to form, with the column foot, a very shallow mentum. Petals about 1.7 X 0.7 mm., + narrow-ovate. Labellum about 1.2 X 0.7 mm., hinged to the apex of the column-foot by a very short and slender claw, erect in the basal half where deeply channelled and somewhat delated near the base; apical half deflexed at right angles to the basal half, oblong, obtuse, ± flat. Column about 1.2 X 1.2 mm. with a foot about 1.2 X 0.5 mm. at about a 90 degree angle to it. Stigma small, ± semi-circular. Anther about 0.5 X 0.5 mm., pointed on top; rostrum vertical, transverse oblong. Pollinia ± typical of these of the genus.
FLOWERING PERIOD: - usually September to November.
The species under discussion has close affinities with B. gadgarrense Rupp but differs from that species mainly by having larger and more cylindrical leaves which are sessile on the pseudobulbs rather than petiolate; sepals more constricted and pointed; shorter lamina of the labellum which is not decurved at the apex and broader column.

continued on page 96.

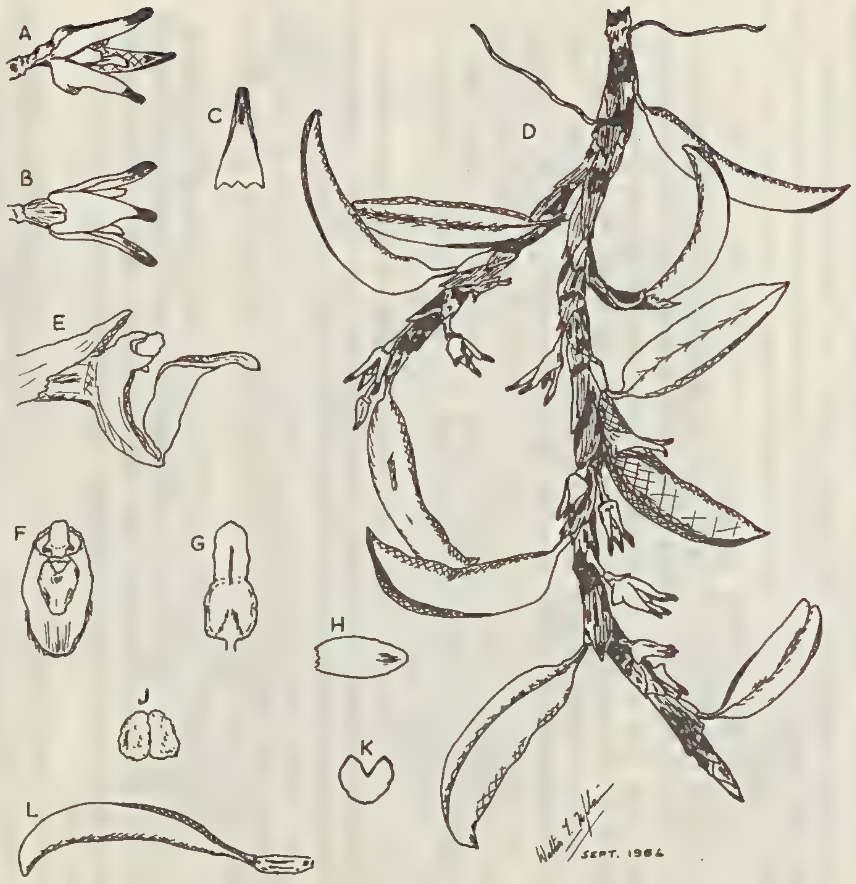
KEY TO PLATES:

Bulbophyllum gadgarrense Rupp.

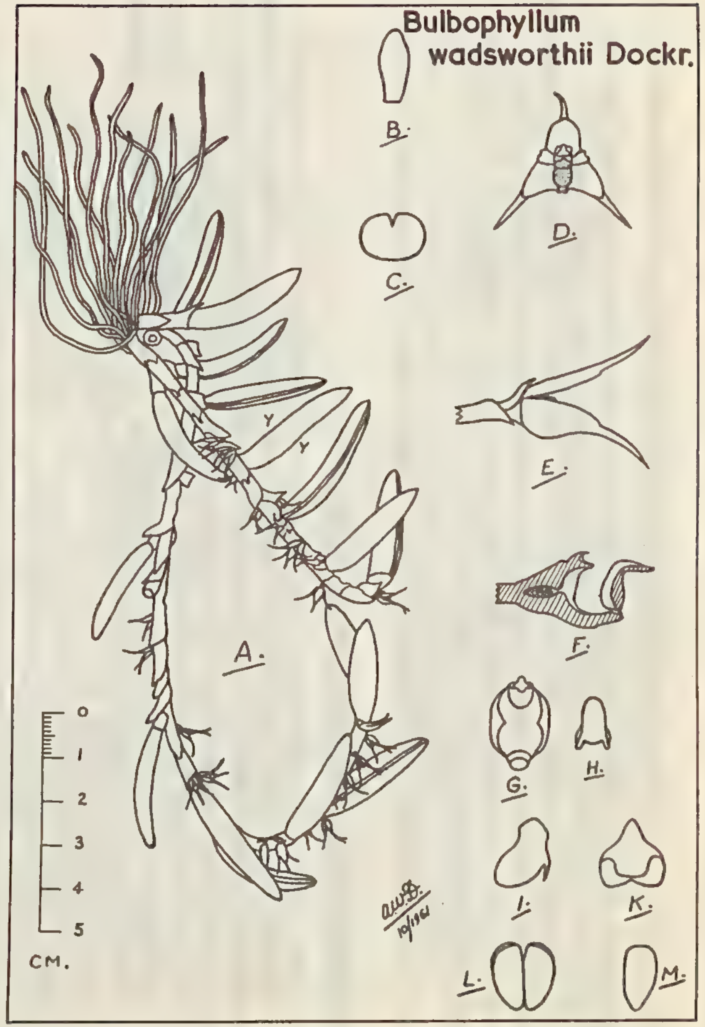
A. Flower from side 4 times natural size.
B. Flower from above 4 times natural size.
C. Dorsal sepal 4 times natural size.
D. Plant twice natural size.
E. Flower from side with sepals and petals removed approx. 10 times natural size.
F. Column from the front approx. 12 times natural size.
G. Labellum pressed flat 8 times natural size.
H. Petal 8 times natural size.
J. Pollinia greatly enlarged.
K. Cross section of leaf twice natural size.
L. Leaf and pseudobulb twice natural size.

Bulbophyllum wadsworthii Dockr.

A. Plant to indicate size.
B. Petal.................................... to scale X 10
C. Cross section of leaf at Y-Y.. to scale X 2
D. Flower from the front.............. to scale X 5
E. Flower from the side................ to scale X 5
F. Median longitudinal section of column & labellum .... to scale X 10
G. Column from the front............. to scale X 10
H. Labellum from above............... to scale X 10
I. Anther from the side .... to scale X 30
K. Anther from the front............... to scale X 30
L. Pollinia from the front............ to scale X 30
M. Pollinium from the side .... to scale X 30



Bulbophyllum gadgarrense Rupp


Bulbophyllum wadsworthii Dockr.

A New Species of Bulbophyllum for North Queensland. continued

The present author has much pleasure in naming this species (which has often been falsely identified as B. gadgarrense Rupp) after Mr. K. Wadsworth who, for many years, has been a keen collector and student of the orchids of the Atherton Tableland and nearby areas. Latin description compiled by Dr. Mary Tindale, Botanist, National Herbarium of New South Wales.

A.W. Dockrill. 11 Balzer Close, Edge Hill. Cairns. Nth. QLD.

AN AUTHOR WITH SOMETHING TO SAY.

This is me, Eric Gordon and I am in a very unhappy frame of mind after spending a couple of hours looking over copies of "The Orchadian". It presents a sorry state of affairs in a society such as this, where all members are believed to be interested in one thing. What does my study reveal ? It appears that "The Orchadian" is principally a reflection of the ideas of your Council, or a means of conveying the knowledge they have (or believe they have) to all and sundry.

Let us look at the record!

Total pages published 88
Editorial matter 15½ pages.
By W.T. Upton and S.C. Clemesha, individually and collectively 11 pages.
By Life Member Alick Dockrill 11½ pages.
By our President 5½ pages.
By Bob Curtis 4½ pages.
By "That bloke" Gordon (me) 15½ pages.
By other contributors (15 in all). 14½ pages of which Leo Cady and John Blackmore contributed 8. These figures are to the nearest half page. I feel that I am justified in asking; what is the matter with you, the other members ? Presumably you are members of this Society because you grow, or are interested in Australian Native Orchids - Why not tell your fellow members what you have learnt about these orchids, either by study, by your horticultural efforts or by your observations in the field ? Do you agree with all that other contributors have had to say ? I find it very hard to believe from what I know of the average orchid enthusiast, that you do.

If you don't believe it or you feel that you know better, why not have the courage of members like Don Patterson (whom you may remember challenged the President) and say so ? Don't be concerned that some other member may think you are wrong. After all, both our President "Bill" and Don Patterson use a technical psychiatric phrase when they say of each other "Oh! he's nuts".

I have pointed out previously that Botany is not by any means an exact science and that the world's greatest botanists cannot agree on a basic means of classifying plant families, so, what chance have we of agreeing on the relative merits of fowl manure, blood and bone, or whether we should use either.

Maybe you live in an area where orchids abound, or in an area where occasionally you may find a solitary "terrestrial" which has escaped the ravages of sheep or rabbits. Maybe you have never seen an Australian Native Orchid and your interest is purely academic or maybe you only own orchids which you bought in Paddys Market, Sydney or from Woolworths at Nundah in Brisbane, or you have responded to the lure of an advertisement by dealers in north Queensland. Maybe you come under any one of a number of other headings that I can think of, but which ever one; YOU MUST HAVE ACQUIRED SOME KNOWLEDGE OF OUR NATIVE ORCHIDS. So why be like the old-fashioned tradesman who hated like hell to pass his special knowledge on to apprentices who were trying to learn.

I will probably find myself ex-Vice President after the next election as a result of this outburst, but, I can assure you, my fellow members, that I will be very happy the day my good friend Murray Corrigan, our editor, changes his stock greeting of "Have you written anything for me", to "I don't want your old article, I have plenty from the other members".

So in conclusion, I say, What about starting on your article now ?

Eric Gordon, 263 Goulburn Street, Sydney. N.S.W.

A Presidents Travels. continued from page 88.

A few slides from one of the members were exceptional. One, a pure white Sarcochilus fitzgeraldii that really glistened, and another of a pink Spiranthes sinensis, possibly the worlds most widespread orchid. It is always flattering for someone to produce a specimen for identification, that is if you happen to be sure of it, otherwise--.

However I felt confident in identifying a member of the Sarcanthus genus, which had been named as Phalaenopsis amabilis var rosenstromii by a previous visitor. As I have a specimen of the latter plant I was "one up".

This closed our tour north of the border. Queensland hospitality has to be experienced to be believed.

Grafton had arranged a special meeting. Secretary, Milton Slade, a former member of Newcastle Orchid Society and an old friend had extended an invitation some time previously. The meeting had been publicised over the local radio and in the press. Again a good roll up. Among the visitors were several members of an outlying Naturalist Society, from Copmanhurst who had known Rev. H.M.R. Rupp when he was in that district. A plant shown as an Eria, was in fact a dwarf form of Dendrobium speciosum. This was confirmed next day when we arrived at Coffs Harbour. Len Archer had a similar plant and his was only half as large. As his had flowered there was no doubt about it.

The forenoon of next day was spent visiting with President "Scotch" Friar, Milton Slade and Dr. Rae. Grafton is climatically a wonderful spot to grow orchids. Possibly it can embrace a greater variety of Orchids than anywhere else and some very fine collections were seen. We left, feeling a very warm regard for Grafton people.

At Coff's Harbour we have several members. One of many years standing, Pat (G.A. Paterson) and his wife Del, were both down with the 'Flu, so only a brief call.

Len Archer, one of our foremost "Native" men, with an unparalleled collection and unsurpassed knowledge of the Dorrigo, spent the day with us in the bush. We searched for, and found the really minute orchid Taeniophyllum muelleri.

To Kempsey and a stop at Jimmy Gravillis's for morning tea. "Our meeting is on tomorrow night Bill, can you make it? Bas Borger is coming from Port Macquarie to talk on Native Orchids". Sure thing, our time was our own, anyway we were en route to Bas for tea. Bas rang Kempsey and conspired with the Secretary and they switched the programme. As Bas remarked, I am quite handy and can come at any time.

Shall I say, "A good time was had by all", it sounds somewhat redundant. All meetings whether large or small, followed the same pattern. A most attentive audience, very kind words of appreciation, particularly directed toward the photography and finally supper.

Is it any wonder that I am now reduced to counting calories.

W.H. Murdoch, Robey Road, Coal Point. 2N. N.S.W.

AN INTERESTING SQUARE MILE.

M.J. Firth.

Looking through a copy of the Victorian Naturalist for Sept. 1933, recently, I noticed an article by Edward E. Pescott, dealing with the remarkable profusion of native orchids to be found within a few miles of home, near Wilsons Promontory. It would appear that over half the orchids to be found in Victoria grew within this area. Although I would be sure that the Bicheno area of Tasmania could not produce "nearly one hundred species", as did Mr. Pescott's, nevertheless, in one season, I was able to locate nearly half our Tasmanian species there; and I would not doubt that I have overlooked quite a number.

Bicheno is a small fishing town and tourist centre on Tasmania's east coast. The town is noted for its mild climate and for the vision of its residents in building a luxurious motel for the tourist trade.

I first visited Bicheno in 1960, and since then have built a holiday home in the town. In 1963, on completion of the house, I began visiting the area for week ends every five or six weeks. During my visits, together with other members of my family, I have fairly thoroughly combed the area for orchids.

continued on page 98.

An Interesting Square Mile. continued.

The house block is natural heath country, less than a quarter of an acre in area. We keep this mowed with a rotary mower, preserving the native shrubs, and avoiding any native orchids which may appear. This little area has yielded Pterostylis concinna, P. pedoglossa, Diuris maculata, Thelymitra ixiodes, Acianthus exsertus, Chiloglottis gunnii and Eriochilus cucullatus. The P. pedoglossa was a most welcome find as it was the first time I had seen this dainty little orchid.

Leaving the house area, let us consider the strip of road running along the coast through Bicheno. In no place is this highway far from the sea, and on the opposite side it skirts a large region of natural bush land. Much of the locality is hilly with rocky granite outcrops amidst poor infertile soil. In a section of this roadside strip some two miles long by half a mile wide, grow possibly the most comprehensive collection of native orchids to be found in Tasmania.

The genus Pterostylis are well represented, we have found fourteen species in the area, Uncommon species, at least for Tasmania, are the magnificent Pterostylis grandiflora, delicate P. alata with its transparent hood, P. curta with its curious twisted tongue, the fork-tongued P. concinna and the controversial P. parviflora.

Dipodium punctatum is very common, so also is Gastrodia sesamoides.

Thelymitra appear to be well represented, but as I did not visit the district for seven weeks after the commencement of flowering, I have so far sorted out only three or four of those present.

All five of our Tasmanian Corybas are present. Corybas unguiculatus I have found only in one spot where about two square yards carry hundreds of this quaint plant. This year they were again all in flower; but, search as we will, we are still unable to locate another area.

Two of our Acianthus are extremely common, and the third A. caudatus is occasionally to be found.

Diuris maculata and D. sulphurea are quite common, the lovely D. pedunculata is also to be found. This year I was surprised to find a specimen of D. maculata in flower in early June.

Cryptostylis subulata eluded me for some time, but we have since found it to be extremely common. We counted one hundred and twenty five in one small area, and other swamps are equally well populated with this striking orchid.

The vital seven weeks missed in September and October have meant that I have not yet found Calochilus in bloom; but a seeding specimen noted late in the year is probably C. saprophyticus.

Along the edges of the frequent little heathy swamp areas Caleana major is common, and the very rare C. minor is almost certainly present. Another rare Tasmanian orchid found in some profusion is Lyperanthus suaveolens.

Less showy orchids to be seen are two Prasophyllums and one Microtis. Further searching of the locality at the right time of the year, should substantially increase the count of these two genera.

Strangely enough, we have found only one solitary specimen of Glossodia major which is probably one of our commonest orchids in the north. Chiloglottis reflexa and C. gunnii are both very common in our interesting square mile.

We have found at least ten different Caladenia here, including C. pallida, C. reticulata and our loveliest spider, C. dilatata. There is one glorious patch of C. deformis, including the rare white form. Most plentiful of all, drooping over the granite, are great masses of Dendrobium striolatum with its attractive flowers appearing about November.

We have found about fifty species of our orchids in this area. I am sure there are at least a dozen or so yet to be listed. Is there any other square mile in Tasmania to rival our Bicheno square mile ?

M. J. Firth, Spreyton, Tasmania.

The Australasian Native Orchid Society

Statement of Receipts and Payments

General Account

To Membership Subscriptions	217. 2. 0	By Rent for Meeting	6. 6. 0
" Bank Interest	10. 5. 0	" Printing and Stationery	4.10. 0
" Sundry Income	21. 2. 0	" Donation - Orchid Society of N.S.W.	5. 0. 0
		" Insurance	4. 1. 6
		" Petty Cash Expenditure	25. 0. 0
		" Freight	4.16. 9
		" Ivory Board	3.19.10
		" Bank Charges	11.10
		" Excess of Receipts over Payments	194. 3. 1
	£ 248. 9. 0		£ 248. 9. 0

Publication Fund Account

To Members Subscriptions	200. 8. 0	By Printing	190.19. 0
" Donations From Members	140. 5. 3	" Petty Cash Expenditure & Postage	28.10. 0
" Sundry Sales	12. 4	" Excess of Receipts over Payments	121.16. 7
	£ 341. 5. 7		£ 341. 5. 7

E. Marygold
Honorary Treasurer.

W.H. Murdoch
President.

I have examined the books of The Australasian Native Orchid Society, and report that the above Statement of Receipts and Payments is in accordance with such books.

F. Wakeley A.A.S.A. A.C.I.S.
Honorary Auditor.

PTEROSTYLIS FISCHII NICHOLLS

This greenhood is one of the most recently discovered in south-eastern Australia, having been found in southern Gippsland near Yarram, by Mr. & Mrs. Paul Fisch in May, 1949. It was later described and illustrated by W.H. Nicholls in the Victorian Naturalist (Vol. 67, page 45.)

Apparently this is the only locality from which the orchid has been found in Victoria, but it has now been found in a number of places in N.S.W. and in the A.C.T. Indeed the type locality now appears to be on the fringe of its range. The writer first found a number of plants in the Grose Valley in April, 1955 and by a coincidence Mr. K. McAlpine of the Australian Museum collected it about the same time, only a few miles away in the neighbouring Kanimbla Valley. J.H. Willis in his "Handbook to the Plants of Victoria", refers to the "remarkable disjunction in range" between the Victorian and N.S.W. habitats, but as with many of such apparent oddities of distribution, the real answer seems to be that insufficient searching has been done in the past. With many orchids, of course, the spread of grazing and cultivation has lead to habitats being wiped out, but fortunately in N.S.W. there is still a wide band of country along the Dividing Range where much of the original habitat remains largely undisturbed.

The next discovery of P. fischii was by the writer, only 50 or so miles short of the Queensland border on the Gibraltar Range, some 25 miles east of Glen Innes. Last year C.K. Ingram and W. Brinsley discovered it in two further localities in the Bathurst district and there was also a recording from the A.C.T. P. fischii will therefore be seen to have a wide range of distribution on the highlands in N.S.W. and it would be surprising if it did not occur in other localities at lower elevations in Victoria.

Nicholls' description is as follows:

A slender plant, about 15-20 cm. high. Radical leaves about three in a rosette distinct from the flowering stem, elliptic to broadly ovate and petiolate. Stem bracts about five, small (0.5 - 2 cm. long), leaf-like, sessile, acuminate. Flower solitary, rather large, with green and rufous striae on a translucent-whitish ground. Galea about 2.5 cm. high, rigidly erect for the greater part, then sharply curved forward to a long and abruptly decurved filiform apex (the dorsal sepal). Conjoined lateral sepals erect, with narrowly acute sinus the base of which is gibbous, pouch-like and protruding; the filiform points erect, embracing the upper portion of galea and exceeding it by about 2 - 2.5 cm. Petals rather short, bluntish, the tips abruptly decurved on each side of the dorsal sepal (in fresh flowers) and almost meeting the lower lip. Labellum less than 1 cm. long (MUCH shorter than the column) almost straight, broadly ovate-lanceolate, on a comparatively long movable claw, sometimes with a constriction about the centre; lamina deeply concave, with a raised longitudinal central ridge and corresponding narrow groove on the underside; apex obtuse or faintly emarginate. Column rigidly erect (in most specimens examined), about 12 mm. long; the upper portion of each wing with a subulate divergent tooth; lower wings oblong, rounded, with softly-hairy incurved margins. Stigma lanceolate; another with a short point.

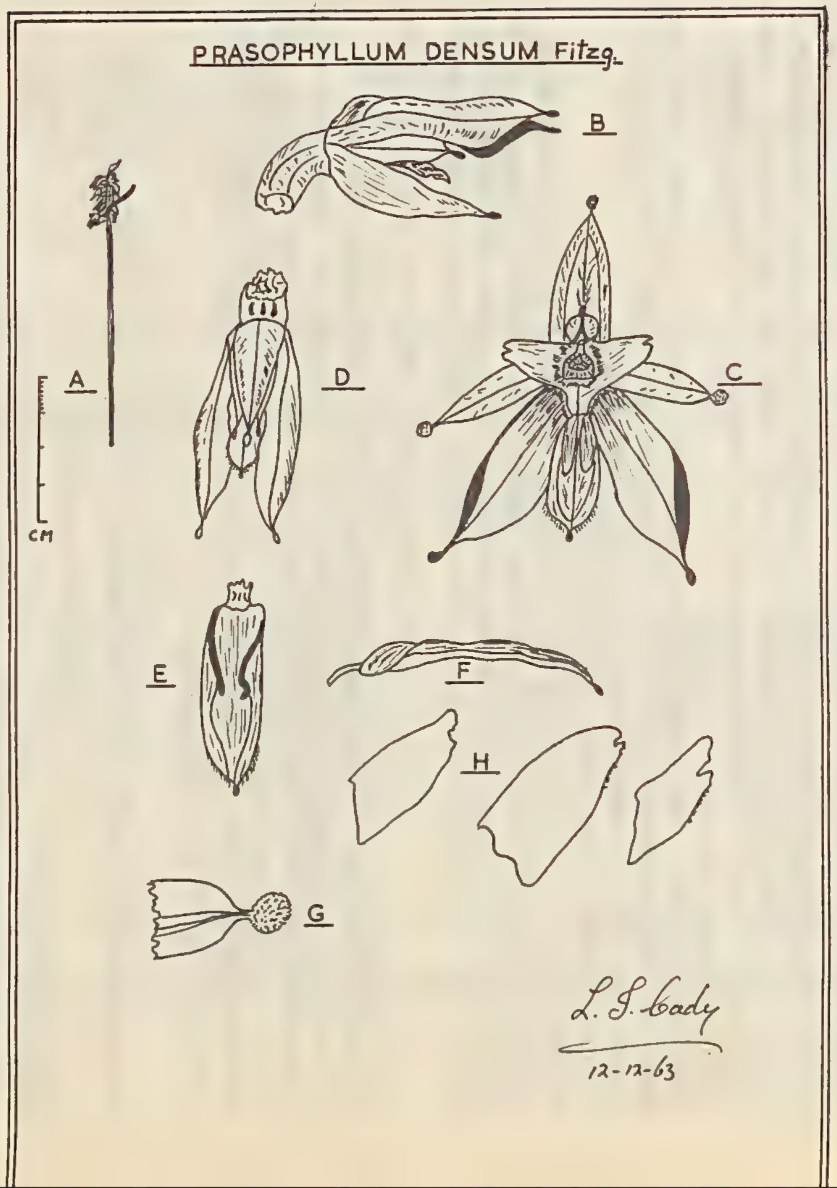
(The illustration shows the details of the plant sufficiently and there is no need for a full description to be set out here. This may be found in the Victorian Naturalist and in the note to plate 83 of the same author's "Orchids of Australia" Volume 2.)

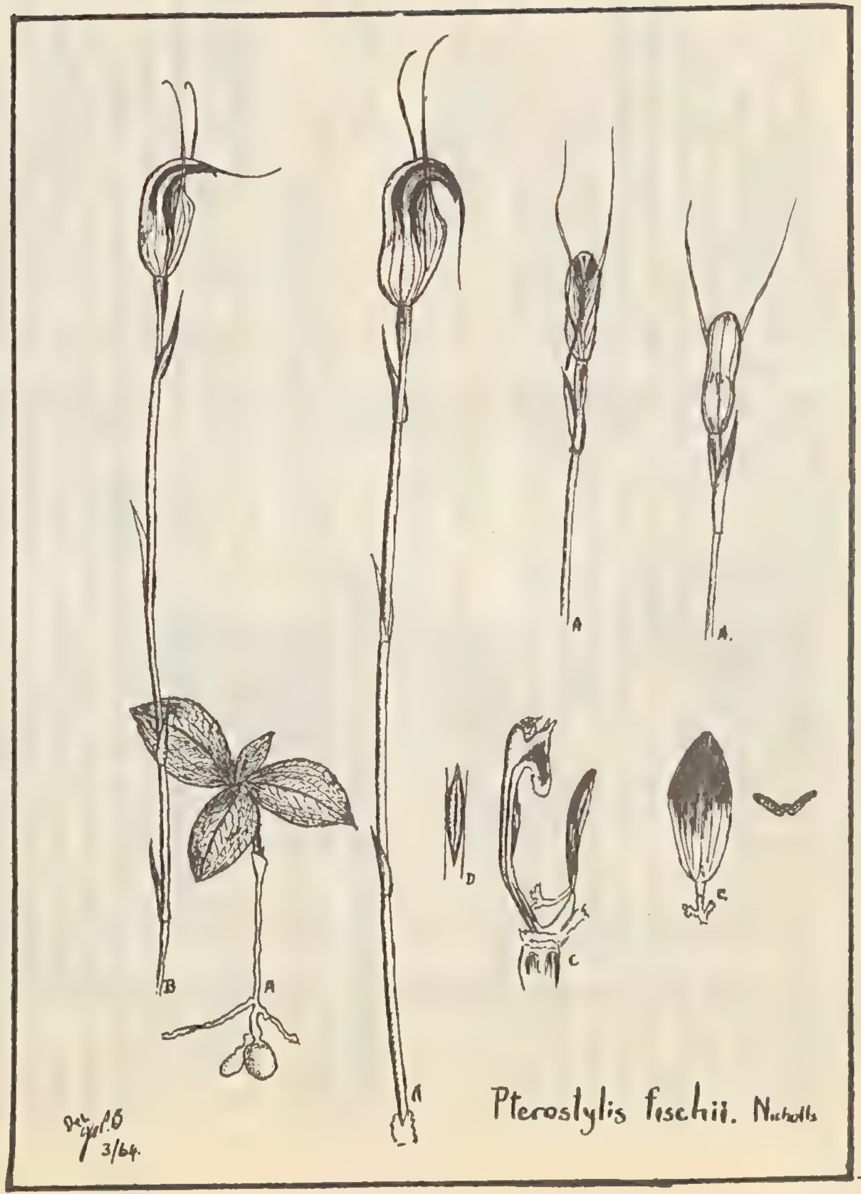
Nicholls refers to the "proud martial bearing" of the flower and shows the long tip of the dorsal sepal much decurved as in plant A. Whilst this is fairly typical of the species, in the Grose Valley specimens the dorsal sepal was in many cases horizontal and even slightly upturned as in plant B. Another feature is the lack of width in the galea when viewed from the front and rear. The dark tip to the labellum is maroon or red-brown. Nicholls refers to the sinus of the lateral sepals as being "gibbous" but this is not general with N.S.W specimens. This species is closest to Pterostylis obtusa and P. decurva. The former was growing in the same locality in the Grose Valley and W. Brinsley reports P. decurva as growing with P. fischii at a spot on the Dividing Range between Lithgow and Bathurst.

continued on page 102.

KEY TO PLATES:

Prasophyllum densum Fitzg.
A. Plant natural size to scale
B. Flower from side............... X 20
C. Flower flattened out......... X 25
D. Flower from above........... X 20
E. Labellum from above........ X 20
F. Labellum from side.......... X 20
G. Apex of petal showing gland
H. Variation in column wings.





Pterostylis fischii Nicholls

Nicholls mentions the flowering time as being May, but at the higher elevations in N.S.W. it may be found flowering from early March. In Victoria it is reported as growing in sandy soil, but in the Grose Valley it was well below the level of the Hawkesbury sandstone and was growing in a clayey loam. It seems to grow in loose colonies but not by any means in as great a number as some of the other greenhoods in the localities in which it has been found. In the illustration the plants A and B illustrated are approximately natural size although taller specimens up to approximately 35 cm. may be seen. The details; C labellum and column, D stigma and E labellum - upper view, are magnified approx. three times.

John A. P. Blackmore, 25 Holden Street, Ashfield. N.S.W.

PRASOPHYLLUM DENSUM Fitzg.

Leo Cady.

FITZG. Journ. Bot. xxiii(1885) 185; Austr. ii, 4(1891); Nicholls. Vic.Nat. lvii(1941).209. Orch. of N.S.W. Rupp (1943) 34.

A dwarf plant, of very dense habit; from 3 - 12 cm. high. Leaf reduced to stem bract, this shorter than the inflorescence, although often protruding from amongst the florets. Flowers usually very numerous in a dense spike, dark brown varying to green or light yellowish green. Dorsal sepal ovate or ovate acute, deeply cucullate; lateral sepals lanceolate, the margins often involute at apice, divergent, up to 4 mm. long. Petals linear acute, shorter than the sepals. Labellum variable usually oblong apice rounding to a point which is often tipped by a small callus, lamina with a large divided callus, the labellum apice often obscurely ciliate. All perianth segments are often as not tipped with a small oblong callus, (not including the column appendages). Column short, appendages variable (see plate) from quite entire, to shortly unequally dentate (never deeply) the lower lobe can be minutely ciliate, but this is rare. Anthers incurved; at times gland tipped. Stigma ovate, rostellum short.
DISTRIBUTION: recorded sparingly on the central to south coast and the central highlands of N.S.W. and as an extremely rare plant in Victoria, also at Noosa Head, Queensland, rare.
FLOWERING: December to May.
REMARKS: this species is a rare plant, and like all others in this group very spasmodic in flowering, and as was stated by Rupp, they seem to rely on the early spring rains to bring them up, so if the rains fail to arrive at the right time then the Prasophyllums fail to flower.

Leo I. Cady, P.O. Box 88. Kiama. N.S.W.

Brief Extracts from the Rupp Letters to G.W. Althofer No. 12.

19-9-45: Prasophyllum odoratum Rogers - ubiquitous - variable sepals - characteristic perfume is quite distinct. Once included in P. patens, R. Br. until Rogers separated it. Quite distinct. Very wide range, from south Q. to S.A. and Tas. On Barrington Tops is a form with beautiful heliotrope flowers.

All material by A.W. Dockrill and W.T. Upton is copyright.

NEW MEMBERS.

Mrs. M. Mills, Holy Trinity Vicarage, Lara. Vic.
G.E. Shelton, "Lelderado", Bandon Grove, via Dungog. N.S.W.
B.V. Pearson, 5 Genoa Street, Surfers Paradise. Qld.
J.N. Simson, "Tristania", 22 McIntosh Street, Forster, N.S.W.
D.G. Bramley, 99 Margaret St., Mayfield East. Newcastle. N.S.W.
D. McFarlane, 124 Gracemere St., Grange. NW8. Brisbane. Qld.
B. Ferguson, 10 Garry Street, Waratah. Newcastle. N.S.W.
E. Marygold, 627 Port Hacking Road, Caringbah. N.S.W.
Newcastle Orchid Society. Sec. Mrs. H.M. Scobie, 71 Bay Road,
Bolton Point. N.S.W.

INDEX - THE ORCHADIAN - No. 1 - 8

S.C. Clemesha

		Number	Page
Acacia		5	58
		6	63
Acianthus		1	3
		7	88
		8	98
	caudatus	5	51
		6	66
		8	98
	exsertus	2	19
		2	20
		4	45
		5	51
		6	66
		8	98
	fornicatus	4	45
		5	51
		6	66
	reniformis	2	19
		2	20
		5	51
		6	62
Adenochilus		1	3
Allium cepa		5	58
Anthurium		4	39
		6	63
Aporostylis		1	3
Araucaria cunnunghamii		7	84
Asplenium nidis		5	57
Banksia		6	66
Belschmeidia tarairi		1	4
Bletia		4	38
Boronia megastigma		4	37
Bulbophyllum		1	3
		6	79
	aurantiacum	2	21
		3	28
		5	51
		7	84
		8	91
	bracteatum	5	51
		7	84
	cilioglossum	6	76
	crassulifolium	2	21
		5	57
		8	81
	crassulifolium var. intermedium	8	92
	elisae	2	21
		3	27
		5	51
	exiguum	2	20
		5	51
		7	84
		8	91
	gadgarrense	8	92
		8	95
	lichenastrum	3	28
	minutissimum	5	51
	nematopodum	6	76
	radicans	6	76
	torressae	6	64
	wadsworthii	8	94
	weinthallii	5	51
Caladenia		1	3
		2	21
		6	72
		8	98
	alba	5	51
	alba var. picta	5	51
		5	60
	barbarossae	6	73
	brunonis	4	44
	cardiochila	2	20
	carnea	5	51
	carnea var. gigantea	5	51
	clavigera	3	35
		5	60
	cucullata	5	51
	deformis	4	42
		6	73
		6	75
		8	98
	dilatata	4	43
		4	44
		5	60
		8	98
	dilatata var. rhomboidiformis	6	73
	emarginata	4	44
	flava	6	73
	filamentosa	2	15
		4	42
		6	73
	filamentosa var. tentaculata	2	15
Caladenia			
	tentaculata	2	20
		4	43
		4	44
	fitzgeraldii	3	31
		5	51
	gemmata	4	43
	hirta	4	42
		4	43
		4	44
	holmesii	3	30
	integra	4	44
	latifolia	2	19
		2	20
		6	73
	longiclavata	4	42
	macrostylis	4	42
	pallida	8	98
	paniculata	4	44
		6	73
	patersonia	4	42
		4	43
		6	73
	patersonia var longicauda	4	42
	pectinata	4	42
	purdieana	4	44
	reptans	6	73
	reticulata	8	98
	roei	4	43
	tenuis	4	44
	unita	4	42
		6	73
Calanthe triplicata		5	49
		5	51
	veratrifolia	2	21
		5	49
Caleana		1	3
		2	21
		2	23
	major	5	51
		8	98
	minor	8	98
Calochilus		1	3
	campestris	3	30
		5	51
	grandiflorus	5	51
	paludosus	5	51
	robertsonii	5	51
	sapropyhticus	3	30
		3	31
		8	98
Casuarina		7	84
Chiloglottis		1	3
	formicifera	5	51
		6	73
		6	75
	gunnii	5	51
		8	98
	reflexa	3	35
		5	51
		8	98
Corybas		1	3
		8	98
	aconitiflorus	1	3
		5	51
		6	66
		6	68
	carsei	1	3
		6	66
		6	68
	cryptanthus	1	3
		1	4
		6	66
	diemenicus	2	20
		6	68
	dilatatus	2	20
	fimbriatus	5	51
		6	65
	fordhamii	1	3
		6	68
	pruinosus	5	51
		7	85
	undulatus	6	66
	unguiculatus	1	3
		6	66
Cryptanthemis	slateri	3	30
		6	66
Cryptostylis		6	73
	erecta	5	51
		6	66
		6	73
		6	75
	leptochila	6	73
		6	75

Cryptostylis	ovata	6	73
		6	75
	subulata	5	51
		6	66
		6	73
		6	75
		8	98
Cudrania		5	58
Cynoches		5	59
Cymbidium		6	74
	canaliculatum	2	21
		5	51
	iridifolium	5	49
		5	51
	madidum	5	49
	suave	2	21
		3	35
		7	84
		5	51
Dendrobium		1	3
		2	22
		3	31
		6	74
		7	79
		7	82
		7	84
	adae	3	27
		7	82
	aemulum	2	21
		2	23
		3	26
		5	51
	agrostophyllum	7	82
	aurantiaco-purpureum	3	28
	Bardo Rose	2	15
		3	36
	beckleri	2	21
		5	51
		5	52
		5	57
		6	84
	beckleri var. racemosum	5	52
	cancroides	1	5
	carrii	7	82
	cucumerinum	2	21
		2	23
		3	26
		3	27
		4	47
		5	51
	delicatum	2	13
		2	14
		2	15
		2	21
		3	23
		5	50
		5	51
		7	79
	discolor	8	91
	Ellen	2	14
		3	36
	falcorostrum	2	21
		2	23
		5	51
	fleckeri	3	27
	fusiforme	5	49
	gracilicaule	2	21
		3	27
		4	39
		5	51
		7	84
	gracillimum.	2	21
		3	36
	gracillimum	5	51
	hillii	3	35
	kestevenii	2	14
		2	15
		5	50
	kingianum	1	2
		2	14
		2	21
		2	22
		2	23
		3	26
		3	36
		5	51
		5	55
		7	84
	kingianum var. pulcherrimum	2	14
	kingianum var. silcockii	3	27
	lichenastrum	3	25
Dendrobium	lichenastrum	3	30
		3	28
		6	64
	lichenastrum var. lichenastrum	3	28
		3	29
		3	30
	lichenastrum var. prenticei	3	30
	lichenastrum var. prenticei forma prenticei	3	30
	lichenastrum var. prenticei forma aurantiaco-purpureum	3	29
		3	30
	linguiforme	3	21
		2	23
		3	26
		3	27
		5	51
		5	57
	monophyllum	2	21
		5	51
		7	82
		7	88
	mortii	5	51
	Peter Peterson	4	40
	phalaenopsis	4	38
	prenticei	3	28
		3	30
	"Profusion"	2	15
		3	36
	pugioniforme	2	21
		5	51
		5	57
	racemosum	5	52
	rigidum	8	91
	ruppianum	5	41
	schneiderae	5	51
		7	82
	schneiderae var. major	7	84
	speciosum	2	15
		2	22
	speciosum	2	23
		5	51
		5	57
		8	97
	speciosum var. hillii	2	21
		3	35
		5	51
		7	84
	speciosum var. fusiforme	5	5 49
	suffusum	7	80
	superbiens	4	38
		6	75
	striolatum	3	27
		5	57
		8	98
	tenuissimum	2	21
		5	51
	teretifolium	3	27
		5	51
		5	52
		5	57
		7	84
	teretifolium var. aureum	5	51
	teretifolium var. fairfaxii	2	21
		5	51
	var. fasciculatum-	8	91
	tetragonum	2	21
		3	27
		5	51
		7	84
	toftii	4	40
	toressae	6	65
		7	79
	undulatum	4	40
	variable	3	28
		3	30
Dipodium		2	21
		3	30
	punctatum	5	51
		8	98
Diuris		2	21
		4	37
		4	43
		5	59
		7	85
	abbreviata	3	35

Diuris	abbreviata	5	51
	aurea	5	51
	brevifolia	2	20
	cuneata	5	54
	longifolia	4	42
	maculata	2	19
		2	20
		8	98
	palustris	2	19
		2	20
	pedunculata	8	98
	punctata	5	51
		5	54
	suplhurea	5	51
		8	98
Drakea		2	23
Drakea fitzgeraldii		4	42
Dysoxylum muelleri		7	84
Earina		1	3
Eria		8	97
Elythranthera	brunonis	4	44
	emarginata	4	44
Epipactus reflexa		3	35
Eriochilus cucullatus		5	51
		8	98
Eucalyptus citriodora		5	59
Galeola		3	30
	cassythoides	5	51
	foliata	5	51
Gastrodia		1	3
		3	30
	cunninghamii	1	3
	minor	1	3
	orobanchoides	1	3
	sesamoides	1	3
		5	51
		8	98
Geodorum		1	3
	pictum	2	16
		5	51
Geranium		5	59
Gladiolus		5	58
Glossodia		2	21
	brunonis	4	44
	emarginata	4	43
	intermedia	4	42
	major	5	51
		8	98
	minor	5	51
		6	66
Goadbyella gracilis		4	44
Gunnia australia		3	32
Helichysum davenportii		4	42
		4	43
		4	44
Hypolaena		1	3
Leptoceras		4	42
Limodorum		4	38
Liparis coelogynoides		2	21
		5	51
	habenarina	5	51
	reflexa	2	21
		5	51
	simmondsii	5	51
Lycopodium sepentinum		1	3
Lyperanthus		1	3
	nigricans	4	42
	serratus	4	42
	suaveolens	5	51
		8	98
Melaleuca		1	5
		1	7
		4	39
		6	66
Microtis		1	3
		8	98
	oblonga	5	51
	unifolia	5	5
Nicotiana tabacum		3	31
Oberonia		3	31
		7	84
	muelleriana	5	51
Oberonia titania		5	51
Oncidium		5	55
Ophrys lancea		5	49
Opuntia		5	58
		6	63
Orthoceras		1	3
	strictum	7	85
Passiflora		5	58
Pelargonium havlasae		4	43
Peristeranthus hillii		5	51
Petalochilus		1	3
Phaius		5	59
	australis	5	51
Phaius	tankervilliae	3	36
		5	51
Phreatia robusta		6	64
Phalaenopsis amabilis var. rosenstromii		8	97
Pisum sativum		6	63
Platycerium grande		4	39
		5	57
		6	63
Prasophyllum		1	3
		2	21
		8	98
		8	102
	anomalum	5	51
	archeri	5	51
	australe	4	40
	brevilabre	4	39
		5	51
	densum	8	101
	elatum	4	40
	elatum var. muellerii	4	40
	fimbriatum	5	51
	fusco-viride	4	44
	gracile	4	37
	horburyanum	4	44
	muellerii	4	44
	odoratum	5	51
		8	102
	patens	8	102
	paludosum	4	44
	ruppii	7	80
Pterostylis		1	3
		1	5
		2	21
		5	58
		6	72
		7	88
		8	98
	acuminata	6	75
		8	94
	alata	1	7
		2	19
		8	98
	baptistii	5	51
	barbata	2	18
		2	20
		4	44
	boormanii	6	68
		7	87
		7	81
	coccinea	1	7
		5	51
	concinna	1	5
		8	98
	cucullata	2	18
		2	20
	curta	2	18
		2	19
		2	29
		5	51
		8	98
	cycnocephala	2	19
		5	51
	daintreana	3	31
		5	50
		5	51
	decurva	5	51
		8	100
	falcata	6	75
	fischii	8	100
	gibbosa	6	70
	grandiflora	5	51
		8	98
	hildae	5	51
		7	88
	longifolia	2	19
		5	51
	mitchellii	6	69
		6	70
		6	71
	mutica	2	18
		2	20
	nana	1	5
		1	7
		2	19
		4	44
	nutans	2	19
		5	51
	obtusa	1	3
		1	7
		5	51
		8	100
	ophioglossa	1	7
		5	51

Pterostylis parviflora 5 51
6 66
8 98
pedoglossa 8 98
pedunculata 1 7
2 18
2 20
5 57
pulchella 8 94
pusilla 2 14
5 51
6 69
6 70
6 71
pusilla var.
prominens 6 70
6 71
recurva 4 42
revoluta 6 79
robusta 2 18
2 19
2 20
rufa 6 69
6 70
6 71
squamata 6 69
6 70
6 71
6 78
toveyana 1 7
trullifolia 1 3
truncata 1 7
7 79
turfosa 4 44
vittata 2 18
2 19
2 20
4 42
woolsii 5 51
6 69
6 70
6 71
Prunus cerasus 3 31
Pyrus malus 3 31
Rhinerrhiza divitiflora 2 21
5 51
Rhizanthella gardneri 6 66
Sarcanthus 8 97
becklerii 2 21
3 34
5 51
purpuratus 2 2
5 51
tridentatus 2 21
Sarcochilus 1 3
adversus 3 32
australis 2 21
3 32
5 51
barklyanus 3 32
ceciliae 5 51
7 88
dilatatus 3 32
5 51
falcatus 2 21
2 23
3 26
3 27
3 32
4 38
5 51

Sarcochilus falcatus 6 62
fitzgeraldii 5 51
8 97
fitzgeraldii var.
aemulus 5 51
harriganae 3 34
hartmannii 2 21
5 51
hillii 2 21
3 37
3 32
5 51
olivaceus 2 21
3 26
3 32
5 51
olivaceus var.
borealis 3 32
parviflorus 3 32
spathulatus 2 21
3 32
5 51
weinthalii 3 27
5 51
5 54
Spiculea 2 23
irritablis 5 51
Spiranthes 1 3
2 21
6 74
Spiranthes australis 5 49
lancea 1 3
5 49
sinensis 5 49
5 51
6 75
8 97
Sporodanthus 1 3
Taeniophyllum muelleri 2 21
5 51
8 97
Thelymitra 1 3
2 21
6 74
8 98
aristata 4 37
5 51
5 55
5 56
ixiodes 3 28
5 51
8 98
longifolia 4 37
5 55
5 56
nuda 4 37
pauciflora 3 28
4 37
Thrixspermum 5 58
australe 3 32
tridentatum 3 36
5 51
Thunia 4 38
Townsonia 1 3
Vanda 6 74
teres 5 59
Yoania 1 3
1 4
australis 1 3
1 4

THE ORCHADIAN

December, 1964. Page 103.
No. 9.

Published by The Australasian Native Orchid Society.

Patron: W. T. Upton.
Vice Presidents: Eric Gordon.
J.H. Scott.
Hon. Secretary: R.G. Napier.
Asst. Hon. Sec.: L. Parker.
President: W.H. Murdoch.
Records Sec.: R.J. Curtis.
Treasurer: E. Marygold.
Editor: M.J.G. Corrigan.
Asst. Editor: S. C. Clemesha.

Price: 3/-.

CORRESPONDENCE:
Editor: M.J.G. Corrigan, 13 Empire Street, Haberfield. N.S.W.
Hon. Sec.: R.G. Napier, 12 Laguna Street, Caringbah. N.S.W.
Treasurer: E. Marygold, 627 Port Hacking Road, Caringbah, N.S.W.

ROYAL BOTANIC GARDENS, STH. YARRA, S.E.1, VIC.

SYDNEY GROUP - A NEW MEETING PLACE.

I am informed that following upon a 'phone call from Pax Lindsay to Wal Upton, Selley's Pty. Ltd. have offered the free use of a meeting hall to the Sydney Group. Dave Hardie and his Committee have accepted this most generous offer and in future the Sydney Group will meet in ideal surroundings.

Meetings will be held on the 2nd. Friday of each month on the third floor of King York House, 32-34 York Street, Sydney.

OBERONIA TITANIA.

H.Hirsch

When I first collected my plants of Oberonia titania, I left them on the host wood which I believe to be Honey Myrtle. They grew well enough for a few months, then as the bark dried out, the roots began to lose their hold and some of the smaller plants died. I did not want to lose them all, so I transplanted some to tree fern blocks and some to paperbark. They appeared to do well on both mediums, flowering but giving a very poor showing of new growth. In an effort to get better results I transplanted them all into Fir bark, using only bark that went through a ½" sieve, this holds moisture better than the very coarse bark. The roots of Oberonia titania, being very short, I pinned the plants into the pot with plastic covered wire.

The results were beyond expectation and in a few months one plant had filled a 4" pot with new growth; this same plant gave me 22 spikes up to 4" long.

All plants are doing well, in fact I think they are better than in their natural state. This method I believe would suit other plants as well as O. titania. Try it, I am sure you will not be disappointed.

H. Hirsch, 12 Delmar Parade West, Dee Why. N.S.W.

PRESIDENTIAL NEW YEAR MESSAGE AND A REQUEST.

ROYAL BOTANIC GARDENS, STH. YARRA, S.E.1, VIC.

Our last issue went to press without my "Christmas Greetings". My fault however, I was preparing for a tour of northern Queensland and overlooked the matter. I am in time however, to wish you all a bright and prosperous 1965.

Our executive is most confident that we are entering into a period of real progress. Subscription renewals have exceeded expectations and a steady stream of new members are joining our ranks. One feature is most significant. More requests are being received for complete files of back numbers than we can fill. One to hand, is from the Director of Kew Gardens, who writes - "We have just seen a specimen of your periodical THE ORCHADIAN, which contains information of considerable interest to us. At Kew we possess the largest collection of orchid literature in this country and we would like very much to add your publication to our collection. If, therefore, you could place the name of this institution on your mailing list to receive THE ORCHADIAN from No. 1 onwards, we would be most grateful." Fortunately, this request can be complied with. I mentioned a tour of northern Queensland, unfortunately we do not have space for it in this issue. I may say, in passing, I was only able to accept two invitations to meetings, although others were made for times that were impossible. At Ingham and Townsville, I was taken to view orchid collections that were very impressive. Calling on several of our members was an

continued on page 104.

Presidential New Year Message and a Request. continued.

enjoyable experience. This calls to mind a matter of real concern to me. In every case, without exception, our members had friends who are interested in growing native orchids, and to whom no approach had been made to induce them to join our ranks. This, of course is a personal matter and it is not everyone who can make an approach of this kind. I feel however, it is important that we undertake a membership drive. Numbers alone will permit us to undertake several publications of great interest now in the course of preparation. WILL YOU HELP ? Send me the names and addresses of your friends who may be interested. I will do the rest. Our objective, with your help, is to double our membership in 1965. Again - all the best for 1965.

W.H. Murdoch, President.

OBSERVATIONS ON POLLINATION OF CRYPTOSTYLIS SUBULATA (Labill.) Reichb.f.

B. Whitehead.

In "Orchids of the West" by R. Erickson, is to be found mention of an observation by E. Coleman on the pollination of species of Cryptostylis in Australia. Briefly, a species of ichneumon wasp (Lissopimpla spp.) attempts to mate with the flower and in so doing, removes the pollinia from the flower. Repeated visits in the same manner to other blooms, brings about fertilisation of the orchid. The orchid is considered to have a strong, and probably unknown means of attracting the male species of ichneumon wasp (Lissopimpla spp.) to it.

A recent experience has emphasised, in my mind at least, the power of this attraction. In early December, flowers on two spikes of Cryptostylis subulata began to open. On a casual early-morning visit to the bush house containing the orchid, I observed the ichneumon wasp in question carrying out its process of fertilisation. The most surprising features were these. Firstly, it was almost impossible to see the flower spikes from outside the bush house. Entrance to the bush house is not particularly easy for insects, unless entry is deliberately sought. Secondly, it is fairly safe to say that these flowers of Cryptostylis subulata are the only plants of the genus within 50 miles of Forbes in any direction, and possibly as many as 70-80 miles.

The species of ichneumon wasp does not appear to be common here. Similar visitations have been observed on other occasions since, and once two of the insects were circling the only open flower. Successful fertilisation is evidenced by the progressive enlargement of the ovaries of all blooms that have opened. In view of the near invisibility of the orchid from outside the bush house and the absence of Cryptostylis species in the area, the conclusion to be drawn can only corroborate the statement that the attraction of the flower is strong (although still unknown to me). One can possibly rule out initial attraction to the flower by shape and, or colour, even though these may be important once the orchid has been discovered by the ichneumon wasp.

As a final thought, many local species of orchids in the same bush house have remained unfertilised, almost certainly because of a lack of visitation by suitable insects.

B. Whitehead, 14 Thompson Street, Forbes. N.S.W.

PRASOPHYLLUM REFLEXUM Fitzg.

S.C. Clemesha

An article in The Orchadian No. 7. p. 80, discussed the finding of Prasophyllum ruppii Rogers, near The Royal National Park, south of Sydney. With it was found another extremely small Prasophyllum which had been found there the previous year by M.J.G. Corrigan. We were unable to identify it and placed it in a bottle of formalin.

I dropped the specimen in to Leo Cady while on a trip to Moruya, and it was quickly determined as the rare Prasophyllum reflexum, previously known only from 3 recordings - Jamberoo, Dural and Royal National Park and Rupp in "Orchids of N.S.W." states that no specimens of it are known to exist at present.

The specimen collected is now in the herbarium of L.I. Cady.

S.C. Clemesha, 3 Consett Street, Concord West. N.S.W.

WARRINGAH GROUP HAS FIELD DAY.

On Sunday December 6th., members of the group enjoyed a field day in the Royal National Park, south of Sydney.

The excursion was led by Group President Wal Upton, and Murray Corrigan, who, with considerable local knowledge acted as guide.

After an 8 p.m. start from Audley, the Flat Rock Creek area was explored. In the sparse scrub country on the southern bank of the creek, widely scattered specimens of Cryptostylis erecta, C. subulata and a damaged plant of Dipodium punctatum were found.

The creek was crossed and the party moved to high sandstone outcrops, about 200 yards from the creek bed. These were dotted with Dendrobium speciosum, both mature plants and seedlings, also Liparis reflexa. These all grew in full sunlight in exposed positions; the D. speciosum in moss on rock faces, and the L. reflexa mainly in crevices.

Noteworthy was the discovery of a solitary specimen of Dendrobium pugioniforme, buried in moss on an exposed rock. A very small plant, and obviously battling for existence. Also noted were Cymbidium suave and Dendrobium linguiforme.

The descent to the northern bank of the creek was made and after some rough going, a further batch of Liparis reflexa was seen. A vertical rock face at least 15 ft. x 12 ft. was packed densely with glossy-leaved plants, full of vitality. The striking feature was the length of the leaves - one measured at least 15 inches. The growing position was shaded, with some filtered sunlight and rising directly from the creek bed.

On the track back to the starting point, nothing further was seen, and we drove some miles south, to a picnic reserve in what was obviously good rain-fall country.

After a cup of very refreshing billy tea, the ladies and children were made comfortable and the bold pioneers again set out, this time to look through the up-stream side of a gully bisecting the main road.

This gully was crowded with tree fern and lillypilly, rotting stumps and fallen veterans of battles with past floods. No sunlight penetrated, and the air was cool and moist. The rocks were small and water-worn and rich with ferns, but, no orchids.

After traversing the creek for half a mile or more, there was no sign of any rise in the ground, or increase in light. We retraced our steps and found one small specimen of Bulbophyllum exiguum growing on a lillypilly trunk, and some Sarcanthus beckleri on dead twigs.

We next entered another gully about a mile north, again on the upstream side of the road. Conditions initially resembled the previous gully, but this one was much narrower, with more defined rock faces. There was noticeably more direct sunlight.

The gully climbed steeply after the first 500 yards and soon we were in a jumble of vast "floaters" and vertical cliffs. Here came the first excitement. Five specimens of Dendrobium tetragonum were seen growing on the trunk of a myrtle. Meanwhile, we were surrounded by great mats of Bulbophyllum exiguum, growing in thick moss on the rocks and Bulbophyllum crassulifolium smothering the vertical faces.

A few yards further up and the creek-bed opened up, forming a deep lightly-shaded ravine. Plants of Sarcochilus olivaceus were abundant; all had robust root systems, obviously to counter the rush of water from the top of the hill. One plant in full flower was observed, and on the way down, a very large specimen of Sarcochilus hillii was detected by its profusion of flowers.

Altogether a very enjoyable and fruitful day, particularly rewarding, as it was the first of many such outings planned by the Group.

The Warringah Group extends an invitation to all members of The Society to come along to our meetings at Stony Range Flora Reserve, Dee Why.

J.W. Evans, 15 Bayview Place, Bayview. N.S.W.

THE POLLINATION OF CRYPTOSTYLIS SUBULATA.

S.C. Clemesha.

Observations of the pollination of this species of orchid by an ichneumon wasp (Lissopimpla sp.) attempting to mate with it have been made by a number of people since Mrs. Coleman's article on the subject.

continued on page 108.

A THIRD GOODYERA FOR AUSTRALIA.

A.W. Dockrill

GOODYERA RUBICUNDA (Bl.) LINDL., BOT. REG. 25:92, MISC. 61 (1839); J.J. SM., FLOR. BUIT. 6: 121; & FIG. ATLAS ORCH. von JAVA 2: F 88 (1909); SCHLTR., ORCH. von DEUTSCH NEU GUINEA 48, t 20, F 66 (1914); HOLTTUM, FLOR. MALAYA, SEC. ED. 1: 122 (1957).

SYN.: NEOTTIA RUBICUNDA Bl., BIJOR. 408 (1825).
GOODYERA RUBENS Bl., FLOR. JAVA, N.S. 36: t 90, F 17-26 (1858); RIDL., FLOR. MALAYA 4: 220 (1907).

AUSTRALIAN RECORD:- Upper Johnston River, North Queensland, 5th October 1960, Lee K. Wadsworth (Herb. Dockr.)

DISTRIBUTION: Extends to New Guinea, Indonesia and Malaya.

The following description was prepared from specimens collected L.C. Plant up to 60 cm. tall. Rhizome about 6 - 8 mm. diam., brittle, creeping along the top of the ground. Roots about 3 mm. diam. Stem 10 - 25 X 0.6 - 0.8 cm., brittle. Leaves 3 - 6, petiolate; petioles 3 - 6 X 0.2 - 0.3 cm., deeply channelled, sheathing; lamina 5 - 12 X 2.5 - 5.0 cm., obliquely subovate, acuminate, brittle. Inflorescence 15 - 35 X 0.2 - 0.3 cm., containing 10 - 20 flowers; peduncle bracts usually 3, about 30 X 5 mm., acuminate, sheathing; floral bracts 15 - 20 X 3 - 4 mm., gradually tapering to a fine point. Ovaries sessile, 10 - 12 X about 2 mm., twisted. Flowers dingy pink (reddish-brown in Malaya etc.) with a translucent white or cream labellum; rhachis, floral bracts, ovaries, sepals and petals pubescent; dorsal sepal and petals galeate, lateral sepals widely expanding.

Dorsal sepal 8 - 10 X 2.5 - 3.0 mm., - cymbiform or obspathulate. Lateral sepals 8 - 10 X 4.5 mm., falcate with a large rounded lobe on the basal 2/3 of the ventral margin. Petals about 6 X 1.5 mm., linear-lanceolate, brittle, translucent. Labellum about 7 - 9 X 3 - 4 mm., very brittle, column-embracing, saccate with a decurved narrow-triangular or almost caudate mid-lobe; saccate portion oblong to circular when flattened, covered inside with glandular hairs which all point to the centre. Column about 5 X 1 mm., slightly curved, consisting mainly of a hollow tube with, at the apex when the anther is removed, an erect, narrow filament and a horizontal stigma broadly separated from it. Stigma oblate with an uneven surface. Rostellum apparently the lobe in the centre of the posterior margin of the stigma. Anther firmly attached to the filament, horizontal, about 2.5 X 1.5 mm., elongate-pyriform, shallow. Pollinia 4 in 2 pairs, very elongate-spathulate in outline, granular (actually packets of loose grains), stipitate; stipes very short, firmly or almost permanently attached to the apex of the rostrum of the anther, fertilisation being effected merely by the heavy end of the pollinia dropping onto the horizontal stigma.

A.W. Dockrill, 11 Balzer Close, Edge Hill. Cairns. Nth. QLD.

A NEW COMBINATION FOR A NORTH QUEENSLAND ORCHID.

A.W. Dockrill

MOST MODERN BOTANISTS REALISE THAT THERE ARE NO SIGNIFICANT MORPHOLOGICAL DIFFERENCES BETWEEN CIRRHOPETALUM AND BULBOPHYLLUM AND THE FORMER HAS BEEN ABSORBED, AS A SECTION, INTO THE LATTER. MOST SPECIES OF CIRRHOPETALUM HAVE BEEN LEGITIMATELY TRANSFERRED, BUT THE PRESENT AUTHOR HAS BEEN UNABLE TO FIND WHERE SUCH A TRANSFER OF THE AUSTRALIAN SPECIES HAS BEEN EFFECTED AND TO OVERCOME THIS OMISSION, THE FOLLOWING NEW COMBINATION IS GIVEN:

BULBOPHYLLUM CLAVIGERUM (FITZG.) DOCKR. COMB. NOV.

SYN.: - CIRRHOPETALUM CLAVIGERUM FITZG., JOURN. BOT. 21: 204 (1883); ET AUST. ORCH. 2: Pt. 5 (1893); F.M. BAIL., QLD. FLOR. 5: 1540 (1902).

This must, indeed, be a rare species. Fitzgerald L.C., gave the locality record as Cape York Peninsular and nothing more was heard of the plant until the late Dr. H. Flecker recorded it from Pine Creek, North Queensland.

A.W. Dockrill, 11 Balzer Close, Edge Hill. Cairns. Nth. QLD.

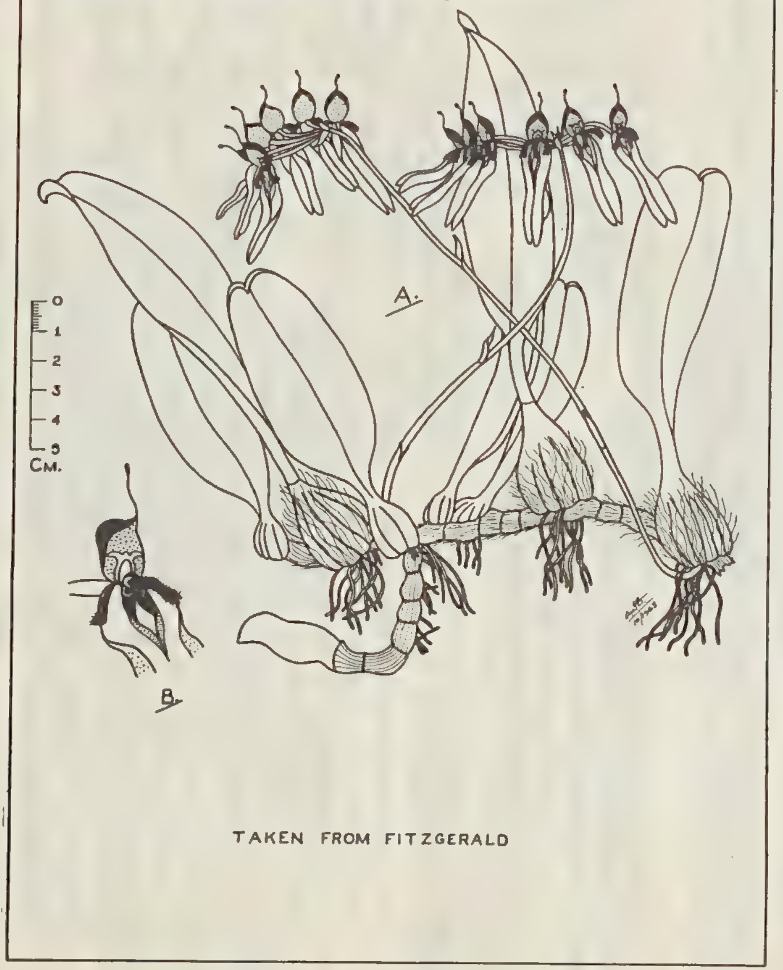
KEY

- A. Plant .... Natural size.
- B. Dorsal sepal .... x 2
- C. Lateral sepal .... x 2
- D. Flower from the front .... x 3
- E. Labellum from the side. .... x 2½
- F. Labellum flattened out .... x 2½
- G. Petal .... x 2½
- H. Column from the top, Anther removed .... Greatly Enlarged

- I. Pollinia)
- K. Anther from above)
- L. Column from the side)
- M. Top of column from the side)

Figures variously enlarged.

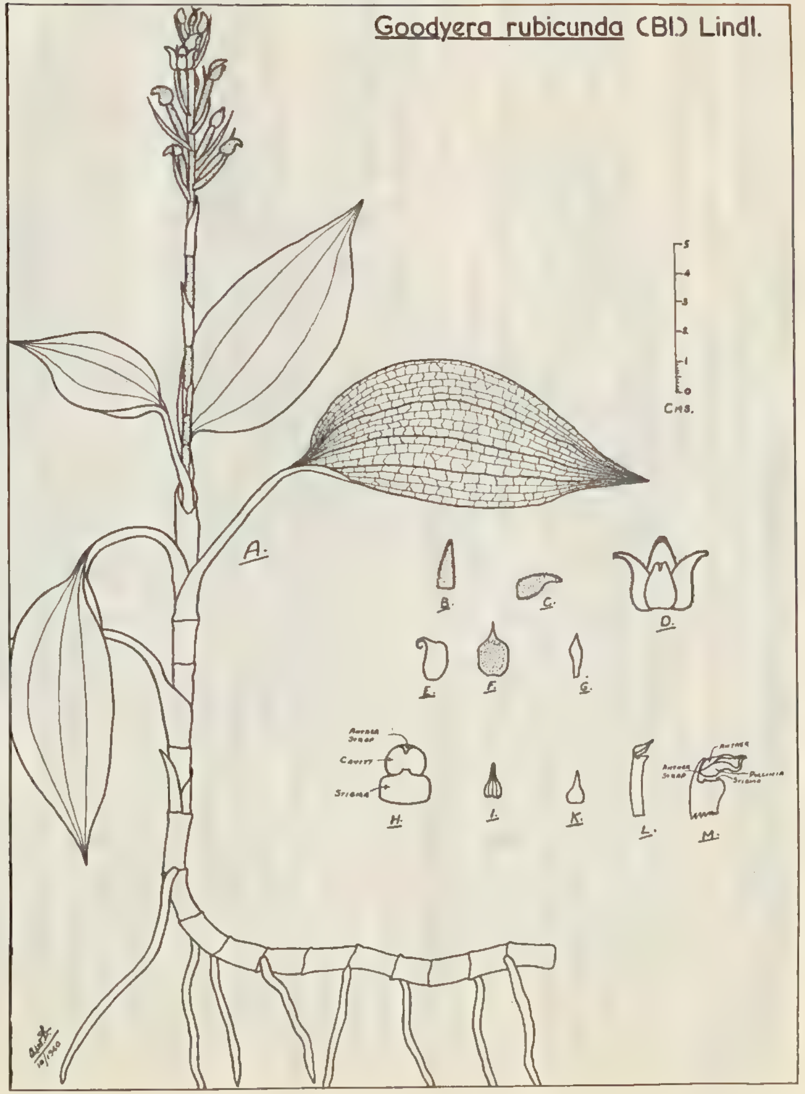
Bulbophyllum clavigerum (Fitzg) Dockr.



TAKEN FROM FITZGERALD

A. PLANT ······· TO INDICATED SCALE
B. PORTION OF FLOWER ······ TO SCALE X 2¼ (APPROX.).

Goodyera rubicunda (Bl) Lindl.



The Pollination of Cryptostylis subulata. continued.

The orchid must have a strong means of attraction. The commonness of the species proves the success of the method. While I was looking at my neighbour's orchid collection, 2 ichneumon wasps were seen attempting to mate with a flower of Cryptostylis subulata.
The wasps are not common in Concord and it would seem that the flowers must have attracted them by scent, as the plants were surrounded by heavy shade from shrubs and were difficult to see from overhead.

S.C. Clemesha, 3 Consett Street, Concord West. N.S.W.

AN APPRAISAL OF PIPE CULTURE.

R. Kerr

Four years ago I noted the success of Allan Rushton of Berowra in growing native orchids on agricultural pipes. Enthusiastically I followed suit. After several seasons experience of the technique I am somewhat less enthusiastic and indubitably more critical.
There are two basic methods of pipe culture. With the first method, one end of the pipe is cemented in, and then paperbark (Melaleuca spp.) is tied around it with copper wire. In hot weather the pipe is filled with water, and during watering it overflows between bark and pipe in simulation of sap action.
The other method is to leave the bottom open and the pipe bare, and drill a few holes around the pipe for plant roots to wander in and out. This method seems to be most effective with Sarcochilus falcatus.
Here is a summary of my experience with particular species:-
Dendrobium aemulum. Establishment was slow in all cases, and individual plants failed. Root growth was not as good as on those plants attached to paperbark at about the same time. Flowering has been very good.
Dendrobium falcorostrum. The plants established themselves quickly and new growth has been made each year. This also applied to plants established upon wood or paperbark, or wood and elkhorn peat. However, flowering has not been as good as the wood established plants. Of all growing techniques tried for this variety, potting has been the least successful.
Dendrobium beckleri. This orchid is one of the most epiphytic of all our natives, and, as expected, it established itself quickly and easily on pipes covered with paperbark. But this also applied to paperbark logs. Surprisingly I have obtained the best results in growth and florescence by growing this orchid in pots, using ordinary Cymbidium compost. Pot culture is so much easier too.
Dendrobium cucumerinum. Establishment has been long and florescence poor. This may be due to the method of attachment: the rhizomes having been inserted in a slit made in the paperbark covering the pipe. In any case this is a slow orchid to establish on any medium.
Dendrobium linguiforme. Establishment was slow but is now well away. Leaves have covered the pipe entirely and many are now impacted. This season the plant was covered with flowers.
Thrixspermum tridentatum. Results have been fair, but not as satisfactory as paperbark logs.
Sarcochilus olivaceus. Very slow to establish. My pipe plants were just starting to develop satisfactorily when a move to a new address meant neglect for a few weeks, and several plants collapsed. Here again I have found paperbark to be a better host. I believe that light and shade control is a more potent factor in growing this orchid than the growing medium.
Sarcochilus falcatus. Allan Rushton has achieved phenomenal success growing S. falcatus directly onto agricultural pipes. He makes a few holes about shilling size at random points, so the roots can wander inside or out the bare pipe. During very hot weather the orchid roots are kept cool by placing the bottom of the pipe in a tray of water. I prefer to use a slotted pot.

To summarise: Though pipe culture techniques have their uses, they are not the universal answer to growing native epiphytes.

R. Kerr, 57 Mount Pleasant Avenue, Normanhurst. N.S.W.

NATIVE TERRESTRIAL ORCHID CULTIVATION AT SPRINGSIDE NEAR ORANGE.

Miss M.A. Giles.
W.E. Giles.

Geography.

Springside is situated at an altitude of 3400 feet and lies about 7 miles to the S.W. of Orange. Mt. Canobolas is visible in the distance. The rainfall is about 45 inches per annum. Winter frosts are severe. Minimum temperature readings taken from a thermometer situated in a fully exposed position, on the top of a trimmed 3'6" high hedge range down to 12°F. with readings of 18° to 22°F. fairly common during the months of May, June, July and August. Winter rain is often excessive, while droughts are often severe during January, February and March and even later into Autumn.

Culture.

We have always been interested in native orchids, and for the past five or six years have paid considerable attention to terrestrial orchids and we are having success with our method of culture. Tins are used in preference to clay pots which are extravagant of space and dry out quicker and are also heavier. The popular size tin with us is the 1lb. sweet corn or pea tin, although tins to 1 gallon size are used. Tins are crocked for 1/3rd. of their height. Good drainage is essential, even for plants that naturally grow in very moist places. A layer of semi decayed leaves or spagnum moss covers the crocks. The compost used is a mixture of 1 to 2 parts good fibrous loam, 1 part leaf mould and 1 to 2 parts coarse sand or grit. Tins should have 1 or more large holes in the bottom. Small holes tend to rust and fill up.

Soil round collected plants is inclined to compact at digging and we find it wise to carefully clear tubers of their native soil though this soil is usually mixed into the prepared compost.

Care must be taken at all times not to over water and a little on the dry side is better than too wet. Indeed if the compost in a tin becomes soggy it seems wise to repot the plants at once. Even bog denizens seem to resent soggy wet soil.

Protection from wind, too strong sun, winter frosts and winter rain is always desirable, therefore our plants are housed in packing cases lined with polythene, covered with light screens or muslin in sunny weather and polythene to keep off rain. If heavy frosts threaten some sacking is placed over the packing cases.

Pests and diseases.

By far the most serious pest is the common garden slug, which in spite of the fairly liberal use of metaldehyde in various forms of bait and spray is responsible for many losses. Glass jars with the bottom missing - either by accident or by being heated and then stood in shallow cold water - are some protection when placed over the plants. Slugs do not cross the broken glass and usually do not move through the soil, but between the soil and the container. Caterpillars, slaters, shield bugs and aphids also give some trouble. Capthion is a good general purpose dust. Probably some of the systemics would act as well.

The main fungus troubles are a leaf spot, collar rot and most serious of all tuber rot. Captan and sulphur dust help with the first two while tuber rot seems largely due to over watering or faulty drainage. Ants, earwigs and slaters also can destroy tubers and must be watched for.

Genera in cultivation.

1. Pterostylis.

Of the genera in cultivation here Pterostylis is by far the easiest to please, Pt. curta is the most rampant, capable of filling a gallon can in about 3 years and flowering very freely. Pt. falcata grows well if given dense shade and flowers regularly but has a great attraction for slugs, etc., so rate of increase is slow and uncertain.

Of the autumn flowering group Pt. coccinea, Pt. revoluta, Pt. decurva, and Pt. reflexa persist and increase rather slowly but are all rather shy flowerers.

Continued on page 110.

Native Terrestrial Orchid Cultivation at Springside Near Orange. contd.

The "rufa" group of Pterostylis come from drier climates and have really not been tried out for any length of time. The first plants we collected flowered once and then disappeared, but later collections seem to be increasing.

Pt. mutica, its close relative Pt. cycnocephala and Pt. pusilla increase very slowly but continue to grow and flower each year.

Pt. alata grows well and multiplies slowly but is an exceedingly shy flowering species. Probably monocarpic, the rosettes seem to take 4 to 5 years to reach flowering size.

Pt. barbata has flowered each year for several years. Pt. nutans, Pt. truncata and Pt. pedunculata seem easy to please. Pt. longifolia is inclined to die out after flowering, perhaps ants or slaters are the cause.

Perhaps the most surprising failure is Pt. parviflora which may blossom from a lifted rosette but seldom lives beyond that in spite of the fact it is a native of the district.

2. Caladenia.

We are achieving a reasonable amount of success with the "Spiders" - the Calonema section, but those of the Eucaladenia section seldom survive for more than a year or two. Caladenia clavigera, a local native has flourished for a number of years, flowers each year and has multiplied. C. dilatata is also fairly persistent in its desire to live.

3. Thelymitra.

T. pauciflora grows reasonably well, producing a flowering stem most years and setting seed without opening a flower as far as we can see.

4. Calochilus, Corybas, Chiloglottis, Acianthus, Glossodia, Eriochilus.

Members of these widely dissimilar genera can be grouped together as difficult to please and short lived, regretfully as some very attractive species are included. More of less radical changes in treatment may be called for.

5. Spiranthes.

Spiranthes sinensis succeeds well and is rewarding.

Miss M.A. Giles & Mr. W.E. Giles, Springside, via Orange.

PTEROSTYLIS CONCINNA R.Br. IN QUEENSLAND.

S.C. Clemesha

In Orchadian No. 1, page 7, an article on Pterostylis concinna by W.T. Upton and the present author was published. The most northern recording of the species was stated to be Blunder Creek, near Brisbane. (B. D. Grimes, Aug. 1933).

Subsequently I have had an opportunity to examine this specimen at the Brisbane Herbarium. To my surprise it was a dark reddish colour and lacked the bifid labellum which is so outstanding a feature of Pterostylis concinna. This flower is doubtlessly Pterostylis pedunculata R.Br. I saw other south Queensland specimens of Pt. pedunculata and have had fresh specimens of it sent to me from Springbrook and Tamborine Mountain. The only other Queensland recording of Pt. concinna is from Tamborine Mountain (Mrs. H. Curtis, 1937). Unfortunately I could not find this specimen in the Brisbane or Sydney herbaria, but feel that it too, is probably Pt. pedunculata.

In N.S.W., Pt. concinna appears absent in the northern half of the state. The most northern recordings I have been able to trace are Paterson, Rupp 6-1925 and Myall Lake, Rupp 7-1924.

Its apparent absence north of there and the existence of Pt. pedunculata at Tamborine Mountain makes the existence of Pt. concinna appear very doubtful in Queensland.

I doubt if this species grows out of N.S.W., VIC. and TAS.

S.C. Clemesha, 3 Consett Street, Concord West. N.S.W.

MY EXPERIENCE WITH SOUTH AUSTRALIAN SWAMP LAND ORCHIDS.

R. Nash

Here in South Australia are to be found quite a number of terrestrial orchids, which grow chiefly in swamp land or near same. By near swamp land I mean, land that is marshy or boggy during the winter and is very damp in summer.

The best orchid swamps in my experience, are to be found at the southern end of the Mt. Lofty Ranges. Other swamps are to be found in the lower south east of South Australia. Many swamps in both areas have been drained with consequent plant loss. At the swamps in one area, locally known as the "Square Water Hole", about 2 miles S.S.E. from Mt. Compass township, I have carried out most of my collecting and investigations. From this new drained and cleared area, I have collected many orchid plants and grow them at home in pots, formerly in an old fish pond and now in an especially prepared pond.

My first swamp orchid was Prasophyllum australe R. Brown, collected near a track passing around the edge of a swamp near the western part of the Kiutpo Forest. This was many years ago, and the one plant that I brought home, grew for about 3 years, but did not flower. It was destroyed in the end by the over feeding of our local snails or slugs. Since this time, I have found it at Heathfield from 1957 to 1962, when the land was cleared; Longwood 1957 to 1959 (land cleared). In both of these areas the plants were found in or near a natural spring. At. Mt. Compass swamps ("Square Water Hole") 1953 to the present, the last season was the best, but unfortunately will be the last, as these swamps have almost been completely destroyed. From my study of the plants in this last area, I am now satisfied that Prasophyllum australe is a colony former.

Many of the plants I collected last summer, had tubers at the ends of long fleshy roots, some up to 18 inches away from the parent tuber. In November 1963, I made a trip to the south east of S.A. and found Prasophyllum australe growing in the swamps at the eastern end of Pt. McDonald, within 4 chains of the sea. These plants were not such a deep prune colour as those found in the Mt. Lofty Ranges, also the membranous part of the labellum does not stand out so much.

Prasophyllum australe may survive in the wild along road sides or around dams.

In growing them, I find they like a pot in which they can spread a little or as I now tend to grow them with other swamp plants in a clump in a pond. The soil must be kept very damp or near saturation all the year, except for the wettest part of winter, when pots may be taken out of the pond and placed in a position where they can collect plenty of rain. In potting this species and most of the other swamp orchids, use a very open gritty or coarse sandy compost made from swamp peat. Very soft broken pieces of pot scattered throughout this compost seem beneficial too. The hole in the bottom of the pot must be enlarged to about 4 times its normal size and a large piece of broken pot laid over it. A layer of fine sand on top of the compost seems to keep the whole pot in a healthy condition and deters slugs from too easy an access to the compost. The second swamp orchid I found was Thelymitra venosa R. Brown, this was by the roadside near the "Square Water Hole" swamp and since then all through the Mt. Compass area. A few were found growing in some small swamps about 5 miles north of Mt. Compass also some in swamp land near Myponga.

This I find is a true swamp plant. I find it a very difficult plant to grow in pots, but it seems to be responding in the clump of swamp plants in the pond method. Before cows were allowed to graze the swamp land I could not find many of these orchids, they then appeared in large numbers out of the peat beds, where most of the heavy growth had been eaten off. Thelymitra venosa may survive in the wild if the swamp drains are allowed to retain some native vegetation, otherwise it could be very easily lost to South Australia as a native orchid.

Diuris brevifolia Rogers, I have found this plant in hundreds, in the swamp land west of Kiutpo Forest following a fire. They still survive along the roadside and in the forest there, but not in grazed land. It was also found at Heathfield and Longwood in the same location as the

continued on page 112.

My Experience with South Australian Swamp Land Orchids. continued.

Prasophyllum australe. Many plants have also been found in the swamps around the Mt. Compass area. It will tolerate dryer conditions than most of our swamp orchids. I have already described a method of cultivation in the second issue of The Orchadian. This species multiplies well under cultivation.

Chances of survival in the wild outside Kiutpo Forest are nil.

Cryptostylis subulata (Labill.) Reichend., I first found it at Willow Creek, between Victor Harbour and Cape Jervis in 1953. The following year I found it in the "Square Water Hole" area. At one time a portion of the "Square Water Hole" swamps was very rich in this species, with many plants growing in every clump of ti-tree, but alas, this land was drained and totally destroyed 2 years ago. I did collect a few plants from this area and another swamp that had been ploughed last summer, abutting the main Victor Harbour road.

It has also been found near Myponga.

Cultivation of this plant in pots is partially successful, it likes plenty of broken shade and a good supply of water, about 3 to 6 inches below the crown. It grows well in the clump of swamp plants method. Chances of survival in the wild are very low although it has been reported to be thriving in pine forests in the south east of South Australia.

Spiranthes sinensis (Pers.) Ames, I have found this lovely plant only in the "Square Water Hole" swamps. At first I could find it only in the wet and more oozy parts of the swamps. But as the land has been progressively drained, it has appeared in more favourable collecting positions. I found one growing in a sandbank, formed by flood-waters, a very fine specimen. This plant is very easily grown in pots providing slugs can be kept down. Slugs I find, do all the damage, by eating out the crowns. Spiranthes sinensis likes plenty of moisture and will grow completely in water. Very soft broken pot in the compost, is very much liked by these plants. I have had them multiply quite well vegetatively, during the period of over 10 years I have grown them. The biggest danger as I have mentioned before, slugs, they live in the compost and do not come to the surface very often to feed.

Baits are therefore almost useless. The layer of fine sand on top of the compost seems to be the only deterrent. Chance of survival in the wild is very low.

The only Pterostylis I have found growing in our swamps was one Pterostylis parviflora R. Brown, this was in the "Square Water Hole" area in February 1963, it had just finished flowering. The area had just been ploughed, unfortunately it did not survive to bloom in 1964. The genus Microtis has 3, and possibly 4 members growing in or near our swamps. The commonest is Microtis parviflora R. Brown and is to be found in almost all swamp land, in large numbers. Microtis unifolia (Forst.) Reichb., is found in and around swamp land and has appeared in numbers in some of the drained and cleared areas of the "Square Water Hole" swamp. One form with a long labellum in particular. I have found Microtis atrata Lindl., only in swamp areas in the south east of South Australia. This was in November 1963. I collected 3 plants and had 6, 4 of them came into bloom in 1964.

Microtis orbicularis Rogers, has been seen once in the "Square Water Hole" area. Another Microtis form, which could have been M. orbicularis, was found at Longwood, but this area was destroyed before a good check could be made. All of the first 3 species grow well in a well drained sandy compost with a sawdust topping. The chances of survival for this genus are high, owing I think, to its colouring, form, and the fact that they multiply well vegetatively.

Orthoceras strictum R. Brown, has been found in the fringe areas of some swamps in the "Square Water Hole" area and in water soaks near Cherry Gardens. Both areas have been cleared for grazing. In the south east of S.A., I have found it growing near large shallow pond-like areas. To date I have not grown it successfully. Chances of survival are very low.

Eriochilus cucullatus (Labill.) Reichb., is quite common in some swamp sedge tufts in the Mt. Compass area. These usually bloom a little earlier than those found in scrub land. Chances of survival in swamp lands are very low.

continued on page 113.

My Experience with South Australian Swamp Land Orchids. continued.

Thelymitra pauciflora R. Brown, is also found growing in swamp land, some specimens being quite robust. It has appeared in greater numbers as the water level in the swamps at Mt. Compass has lowered with drainage. Chances of survival in the swamp lands are moderate.
Corybas unguiculatus (R. Brown) Reichenb., I have never seen, although it is recorded for the Mt. Compass area and the south east of S.A. It has also been reported to exist in a ti-tree swamp at Bridgewater. The pond I grow these plants in has a natural water level of about 4 inches. I replenish the water daily in the hot weather and as required in the cooler weather. The water is run into this pond via a long underground drain, as I find running Adelaide mains water directly into the pond from the hose, results in damage to the plants. I think our water has too much chlorine in it sometimes. The long drain allows any chlorine in the water to escape.
I have a selection of swamp plants growing with my orchids, this gives a better atmosphere for them.

R. Nash, 77 Coromandel Parade, Blackwood. S.A.

A NEW RECORD FOR TASMANIA.

M. J. Firth

With the publication of volume 1 of "A Handbook To Plants In Victoria", by J.H. Willis, I have found the task of identifying our Tasmanian orchids very much easier.
Apart from a very few orchids, all ours occur in Victoria.
During 1964 I have covered the northern and eastern parts of the State, travelling many hundreds of miles in order to secure specimens of orchids for black and white photographs, for a publication I have in mind. During the course of my ramblings I have run across some very interesting variations which seem distinct from the recorded species for this State. In each case I have submitted these specimens to Mr. J. H. Willis, and during the year have added to the list of our orchids, Caladenia dilatata var. concinna and Thelymitra ixiodes var. truncata. By the way, some authorities regard the latter as a separate species. It is certainly quite distinct from the typical T. ixiodes - in that the column is almost entirely free from glands - it is hardly crested, and the column is extremely short.
The last week in November, I was searching a large heathy area near Rocky Cape in Tasmania's far nor'west. About a mile from the road, in a swampy area, I was surprised to find several Diuris palustris, the first I had seen for many years. Not far from these I found Microtis atrata. This was indeed a find, as the only specimens I had seen before were growing near the mouth of the Tamar River. They had been a new find for me in the spring of 1964. A few yards from the M. atrata, standing in about half an inch of water, I noticed several specimens of a Microtis which seemed very strange to me. Examination of the flower by means of a jeweller's loop which I always carry, showed that this was indeed different from any of our Microtis.
When I reached home a quick check showed this plant to be Microtis orbicularis, a rare plant which occurs in only three localities in Victoria. Has a limited range in S.A. and is also found in W.A.

M.J. Firth, Spreyton, Tasmania.

Brief Extracts from the Rupp Letters to G.W. Althofer No. 13.

27-7-45: Prasophyllum fitzgeraldii: Your theory of flowering cycles may quite possibly prove correct, though it would require careful data for corroboration. It is certain, I think, that some orchids "rest" over several seasons and then reappear; but I doubt if there is evidence to show that they do this regularly. Seasonal conditions probably have a good deal of influence in the matter e.g. Prasophyllum fitzgeraldii Rogers and Maiden, occurred once at Wallerawang in six years.

WARRINGAH GROUP AND STONY RANGE.

Following upon the generosity of Stony Range Flora reserve in placing their meeting rooms at the disposal of the group free of charge. We have just been informed that Stony Range Committee has invited Warringah Group to take charge of the native orchids in the reserve. All work carried out will of course, be under the control of Alec Blomberry, the Planting Director. This invitation has been gratefully accepted and Wal Upton and his group are full of plans for future planting. I am sure they would welcome assistance from all members of the Society, as well as donations of any unwanted native orchids for the reserve. Warringah Group has also begun a service which I feel could be a means of preserving many native orchids for the future. They have arranged with the local Council to be informed of any new housing developments within the area. Upon notification of development, they intend visiting such areas and noting all native orchids. Such information to be passed to members holding the necessary licences for removal of the plants to a reserve.

AN INTERESTING OBSERVATION

K. Giles

The article by R. J. Curtis, "The Pollination of Orchids", in The Orchadian, number 6, prompts me to add my observation on Chiloglottis reflexa.

While carrying a few flowers of this species, several wasps were attracted and obviously mistook the labellum for a female wasp. A specimen I managed to capture after this pseudo-copulation, had a small yellow patch of pollen on its back and was forwarded to the National Herbarium with details of the occurrence. They advised me (18th March, 1962) that the wasp was of the Thynnid group and were forwarding it to the Australian Museum for specific identification.

K. Giles, Batlow. N.S.W.

CONSOLIDATED INDEX - THE ORCHADIAN - No. 1 - 8.

We are indebted to Stephen Clemesha for the tremendous amount of work he has put into the index, which appears at the back of this issue. The job involved sitting down and reading every line of The Orchadian and noting the name of every genera and species mentioned. We trust that you find the index of value.

NEW MEMBERS

Mr. J. Evans, 15 Bayview Place, Bayview. N.S.W.
Mrs. J. Evans, 15 Bayview Place, Bayview. N.S.W.
Mr. W.J. Jeffries, 18 Adams Street, South Curl Curl. N.S.W.
Mr. W.B. Jeffries, 18 Adams Street, South Curl Curl. N.S.W.
Mrs. W.B. Jeffries, 18 Adams Street, South Curl Curl. N.S.W.
Mr. J.H. Soiland, 38 Poziers Parade, North Manly. N.S.W.
Mr. R.T. Todd, 8 Elliott Street, Silkstone, Ipswich. QLD.
Mr. H.G. Exton, 5 Shortland Street, Canley Vale. N.S.W.
Mr. L.J. Lawler, 11 Broderick Street, Balmain. N.S.W.
Mr. T.W. Henry, C/- Dos Pueblos Orchid Co. (Aust.) Pty. Ltd.
P.O. Box 90, Dee Why. N.S.W.
Mr. York Meredith, C/- Dos Pueblos Orchid Co. (Aust.) Pty. Ltd.
P.O. Box 90, Dee Why. N.S.W.
Mr. J.W. Moore, "Browmore", via Dungog. N.S.W.
Mr. F.G. Nicholas, 13 Ewing Street, Kotara Heights. N.S.W.
Mr. N. Cox, 9 Chester Street, Stockton. N.S.W.
Mr. A.H. Claydon, 85a Teralba Road, Adamstown. N.S.W.
Mr. Neville Hannan, 12 Brett Street, Waratah, Newcastle. N.S.W.
Miss P.A. Palmer, 319 Lenah Valley Road, Hobart. Tasmania.
Mr. K.W. Crouther, 12 Graham Street, Ayr. QLD.

THE ORCHADIAN

February, 1965.
No. 10.

Published by The Australasian Native Orchid Society.

Patron: W.T Upton.
Vice Presidents: Eric Gordon.
J.H. Scott.
Hon. Secretary: R.G. Napier.
Asst. Hon. Sec.: L. Parker.
President: W.H. Murdoch.
Records Sec.: R.J. Curtis.
Treasurer: E. Marygold.
Editor: M.J.G. Corrigan.
Asst. Editor: S.C. Clemesha.

Price: 3/-

CORRESPONDENCE.

All correspondence with members of the Council appertaining to The Society should be addressed to the individual officer concerned at: P.O. Box C 106, Clarence Street, SYDNEY. N.S.W.

THE ORCHADIAN - BACK ISSUES.

Numerous members of The Society have made enquiries regarding availability of issues numbered 1 to 5. Unfortunately these are now out of print and would only be reprinted if sufficient members showed interest. If you are interested drop a line to Bob Napier and advise him of the fact. Should enough members require copies we will proceed with reprints of the desired issues. Remember to include the following: Name, address and number of copies of each issue required. Members who have already contacted Bob will not need to write again as the pertinent information has been recorded.

THE GENUS APHYLLORCHIS BLUME IN AUSTRALIA. A.W. Dockrill.

In this paper A. queenslandica and A. anomala are described as new species.

No members of this genus have so far been recorded for Australia, so a brief note about the 2 species under discussion, and the general characteristics of the genus, may not be amiss.

The two Australian species are obviously saprophytes as they are leafless and lack chlorophyll. They occur in sandy soil close to creeks in moderate shade, A. queenslandica at elevations of from 500 to 1,000 feet, and A. anomala at about 3,000 feet. Their rhizomes are several inches below the surface of the soil and the roots are not in contact with the roots of trees, rotting wood or rotting leaves, but an attempt at cultivating them met with complete failure.

R.E. Holttum, Flora of Malaya 1:101(1957) gives the following description of the genus: "Saprophytes; rhizome short, rather thin, erect, with spreading thick roots; stem erect with terminal inflorescence of many flowers; sepals and petals about equal, free; lip with distinct short narrow basal part (absent in A. anomala - A.W.D.) to which the more or less 3-lobed blade is joined; column rather long; anther erect on back of column; pollinia 2, powdery.

This is a genus of about 12 species, distribution from Ceylon and northern India through Malaysia to New Guinea. ...."

A description of the 2 new species follows:

1. Aphyllorchis queenslandica Dockrill, species nova forsitan affinis A. elatae Schltr. sed differt sic: columna gracilis; lobi laterales labelli cacuminati; sepala lateralia et petala dilatata ad 1/3 longitudinis ab apice.
   Holotype: Helenvale, north Queensland (C. Le Roy May 1962 - BRI)
   Distribution:- As well as the type locality near Cooktown, plants have been seen near the East Mulgrave and Mossman Rivers.

Stems 20 - 70 X 0.2 - 0.3 cm.; bracts 7, C. 2 cm. long, sheathing. Roots numerous from the erect rhizome, rigid but brittle, not branching, radiating bottle-brush-like in all directions at right angles to the rhizome. Flowers 6 - 12, C. 12 mm. diam., dull pale yellow, not very widely expanding. Dorsal sepal C. 9 X 2 mm., suboblong, acute. Lateral sepals and petals C. 8 X 2 mm., subsimilar, ± falcate, somewhat dilated at about 1/3 the distance from their apices. Labellum C. 6 X 2.5 mm., trilobate; lateral lobes at the narrow basal section, erect, about 1 x 1 mm., ± deltoid but constricted near their apices;

Continued on page 116.

STH. YARRA, S.E.1, VIC.
10 OCT 1966

The Genus Aphyllorchis in Australia. continued.

mid-lobe C. 4.5 X 2.5 mm., ± cymbiform, not exactly trilobate, but margins in the basal third erect, in the central third decurved and in the apical third involute; disc with a narrow-cordate depression. Column C. 6 X 1.5 mm., curved, semicylindrical, not winged. Stigma obcordate. Rostellum C. 1 mm. long, narrow-triangular, recurved. Anther erect, cordate when viewed from above, broader than the column. Pollinia, in all specimens seen, in an unreliable condition. Possibly this species is closest to the New Guinea *A. elata* Schltr., but it is readily distinguished from that species by having a slender rather than moderately stout column, pointed rather than rounded lateral lobes of the labellum, and petals and lateral sepals somewhat dilated about one third the distance from their apices rather than ± tapering from the base to the apex.

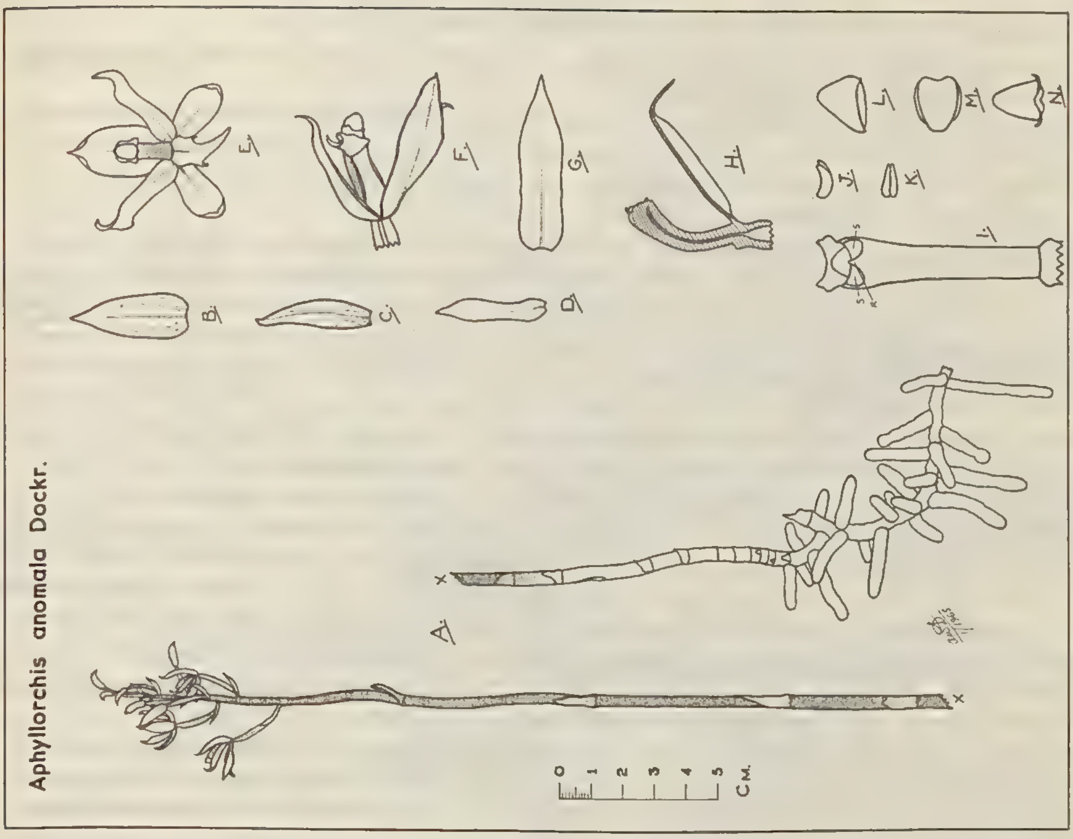
2. *Aphyllorchis anomala* Dockrill, species nova affinis *A. striatae* Ridl. sed differt sic: labellum totum oblongum - acuminatum, basi non angustum; lamina nullo moda trilobata.
   Holotype:- Davies Creek, north Queensland (W. Morris and A. W. Dockrill 9-1-1965 - BRI)

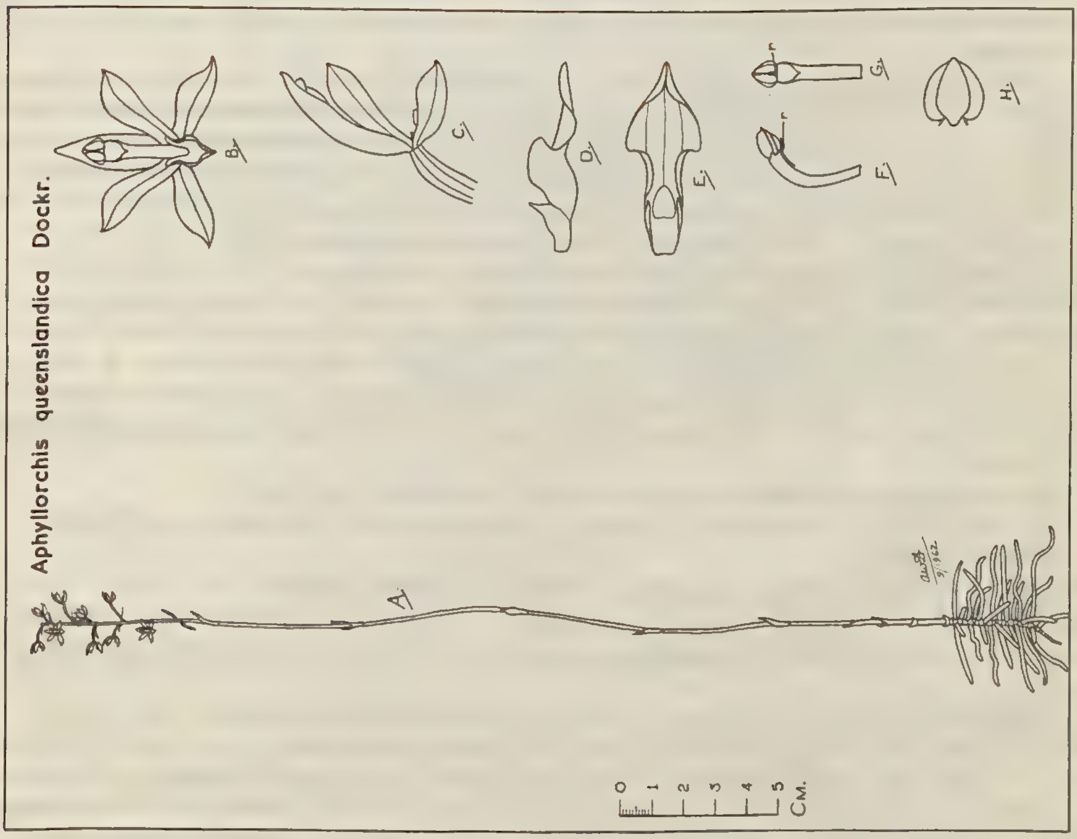
Plant 20 - 55 cm. tall with all of its parts brittle. Rhizome often branching but seldom longer than 10 cm. and averaging about 4 mm. diam. Roots 3 - 4 mm. diam., short, obtuse, radiating bottle-brush-like, ± at right angles to the rhizome, in all directions. Stem 3 - 4 mm. diam., deep purple, usually with C. 5 sheathing bracts on the portion above the ground. Rhachis C. 2 - 15 cm. long, containing C. 4 - 20 flowers; floral bracts averaging C. 7 mm. long, cymbiform-acuminate; pedicels 2 - 3 mm. long; ovaries 12 - 16 X 1 - 2 mm.. Flowers C. 12 mm. diam., not very widely expanding, white, with, on all of the segments, a central fine purple stripe which usually does not extend to the apices, and sepals finely outlined in purple.

Dorsal sepal C. 12 X 3 mm., oblong-cucullate, acuminate, the apex recurved. Lateral sepals C. 12 x 2 - 3 mm., very narrow-ovate, somewhat cymbiform. Petals C. 12 x 2 mm. (when flattened), oblong, acuminate, somewhat constricted about the middle where the margins are often recurved; apical (acuminate) section usually somewhat twisted and curled. Labellum entire and entirely lacking any ridges or appendages and is rather petaloid in appearance, lateral margins decurved and the apical acuminate section decurved and often slightly twisted; when flattened, the labellum is C. 11 x 2.5 mm. and oblong-acuminate. Column C. 7 x 1 - 1.5 mm., slightly curved, footless and wingless, somewhat dilated at the apex; clinandrium with a rather large central dome-like boss. Stigma at the very apex of the front of the column, rather small, divided into 2 semi-ovate sections by the rather large, but not prominent, triangular rostellum, the apex of which extends just above the floor of the clinandrium. Anther not rostate, rather tall, with the tallest and broadest part towards the front; the anther is fleshy throughout, and the pollinia accommodated in 2 widely separated masses at its base. Pollinia soft and mealy and extremely difficult to remove without damage, so self-fertilisation is usually effected before the flower opens, consequently their true nature is difficult to ascertain. The genus is supposed to be characterised by having only 2 pollinia, but in this species, each is *very* deeply grooved, giving the impression that it could almost be divided into 2. Capsules radiating in all directions at right angles to the rhachis, 20 - 25 x 3 - 4 mm., ± cylindrical or slightly fusiform, cream with the ridges outlined in purple.

This species appears to have affinities with *A. striata* (Ridl.) Ridl. differing from it by having an entire labellum which is oblong-acuminate (when flattened), is without a narrow basal section and lateral section and lateral lobes, and the lamina is not even obscurely trilobate. The labellum of *A. anomala* does not conform to the description of that of the genus, but the remainder of the plant so obviously does, that it is considered advisable to include it in *Aphyllorchis* rather than add to the multiplicity of monotypic genera. Between 20 and 30 plants, of obviously different clones, were seen along over half a mile of creek-bank, and all of those which had open flowers, consistently conformed to the characteristics described.

A. W. Dockrill, 11 Balzer Close, Edge Hill, Cairns, Nth. QLD.





Aphyllorchis anomala Dockr.
A. Plant .... To indicated scale
B. Dorsal sepal flattened out .... To scale x 3
C. Lateral sepal flattened out .... To scale x 3
D. Petal Flattened out .... To scale x 3
E. Flower from the front .... To scale x 4
F. Flower from the side .... To scale x 4
G. Labellum flattened out .... To scale x 5
H. Median longitudinal section of column & labellum .... To scale x 5
I. Column from the front .... To scale x 10
J. One pair of pollinia from the side .... To scale x 10
K. One pair of pollinia from above .... To scale x 10
L. Anther from the side .... To scale x 10
M. Anther from above .... To scale x 10
N. Anther from the front .... To scale x 10

Aphyllorchis queenslandica Dockr.
A. Plant .... to one half indicated scale
B. Flower from the front .... To scale x 5
C. Flower from the side .... To scale x 5
D. Labellum from the side .... To scale x 10
E. Labellum from above .... To scale x 10
F. Column from the side .... To scale x 5
G. Column from the front .... To scale x 5
H. Anther from above .... To scale x 10
r rostellum

THE FLESHY LEAVED AUSTRALIAN DENDROBIUMS. S. C. Clemesha.

Most of the undermentioned plants, if not all, belong to the Rhizobium section of the genus Dendrobium.

Species belonging to this section can be distinguished from the other Australian species by (1) their absence of pseudobulbs, (2) their tough creeping or wiry branching stems, (3) their fleshy leaves in which food and water are stored.

D. teretifolium - This species has tough branching wiry stems from which slender, pendulous, cylindrical leaves up to about 2½ feet grow. They are often longer in D. teretifolium var. fairfaxii and D. teretifolium var. aureum. The leaves of this species always hang downwards.

D. teretifolium var. teretifolium - This plant grows in Casuarina spp. swamps between Bega N.S.W. and south Queensland, where it is common on some of the Moreton Bay Islands. Though the swamp oak (Casuarina glauca) is the main host, plants are sometimes found on river oaks, (Casuarina cunninghamiana) and on some of the species of Melaleuca (paper bark). The author has seen plants of D. teretifolium var. teretifolium growing with D. linguiforme on both swamp oaks and paper barks, in a swamp near Kempsey N.S.W. It is interesting to note that the swamp oak is only found as far south as Bega and the same is true of D. teretifolium var. teretifolium. In Sydney this plant flowers in late July and August. In some areas the flowers come later - August to September, i.e. Bergalia via Moruya N.S.W.

This variety is free flowering, producing racemes of up to 12 flowers from the newly matured parts of the stem. Very often the leaves are obscured by the mass of flowers which resemble those of a wild clematis vine.

The flowers are creamy white to white, and have slender segments. The labellum is slender with several wavy ridges and variable small purple markings.

D. teretifolium var. fairfaxii is the common N.S.W. rain forest variety. It is found near Jenolan Caves, the Blue Mountains and north coast ranges. It is replaced by var. aureum near the Richmond River. It is chiefly a mountain orchid which grows in more shaded conditions and produces leaves which are much longer and more slender than those of var. teretifolium. The flowers usually open just about the time those of var. teretifolium are falling. The plant produces them from both new "wood" and to a slight extent the older "wood". It has fewer racemes than var. teretifolium and these racemes in turn produce fewer flowers than those of the last mentioned. Quite often only 2 or 3 and sometimes only 1 flower is produced on the raceme. It therefore is seldom a showy plant. Its flowers differ from those of var.teretifolium as follows:

(1) The sepals and petals do not curve outwards as much.
(2) The base of the sepals and petals are striped with red or reddish-purple.
(3) The wavy labellum ridges are often reddish-purple.

Where rain forest gives way to swamps, or places where river oaks grow intermediate forms between the typical variety and var. fairfaxii occur.

D. teretifolium var. aureum - This variety grows north of the Richmond River in N.S.W. and becomes the dominant form in south Queensland. Like var. fairfaxii it is a rain forest, mountains plant. It flowers about the same time as var. fairfaxii or a little later. Its flowering habits unfortunately are like those of var. fairfaxii. The flowers are yellowish-green to golden-yellow, with the sepals and petals marked with red or reddish-purple and the labellum marked with the same colour. In these respects it is the same as var. fairfaxii and it is the outstanding yellow colouring that separates them.

D. teretifolium var. fasciculatum is the north Queensland variety. It occurs in the lowlands (even on mangroves where one small plant was seen no more than 4 feet above the high tide mark). It is equally common in the coastal ranges and highlands. In the latter areas it avoids the shaded rain forests in preference to single or small groups of trees in paddocks where it grows in full sun with D. racemosum, D. lichenastrum var. prenticei, Bulbophyllum macphersonii and Mobilabium hamatum. In these areas rainfall is high and fogs and heavy dews are frequent. The best specimens of var. fasciculatum I

Continued on page 119.

The Fleshy Leaved Australian Dendrobiums. continued.

have seen grew on trees in the streets of Cairns where they receive almost full sun.

This variety is generally more robust than the type form and its flowers which develop very quickly, do not open till at least a month later than the typical variety.

They are similar to those of var. teretifolium, but can readily be distinguished by the all white labellum. Like the typical variety it is an exceedingly showy plant. It is the least variable of the four varieties of D. teretifolium. The only differences I have noticed have been in the leaves and have been caused by growing conditions.

The varieties of D. teretifolium are easily grown on trees, tea tree, or hardwood (I prefer the last mentioned), respond well to frequent, regular watering.

I grow var. teretifolium in 50% or more sun (full sun in winter - it hangs from a deciduous tree). Care is necessary in establishing var. fairfaxii and particularly var. aureum, which is exceedingly slow for the first 2 or 3 years. When established, I treat them as the typical variety and this way they flower a little better - particularly after a number of years.

I find var. fasciculatum does not flower well unless it gets plenty of sun, so I give it full sun all the year round. My plant is on hardwood and is watered every evening, except in winter, when it is watered every morning. The plant has shown no sign of sun burn.

The showiness of D. teretifolium led to its early cultivation in England. In The Orchid-Growers Manual of 1894, by Williams, a description of it is given with the comment - "A curious-looking species, very distinct in habit, which is well worth growing on account of the profusion of flowers it produces in the winter months."

D. beckleri is a common species between the Hunter River and south Queensland. The dry belt in central Queensland appears to have prevented this and many other species moving further north.

It is common on trees, often in fairly dry softwood scrub and frequently grows on small branches which break easily and fall to the ground. This results in one being able to pick up many plants in a short time. It also grows on rocks where very large plants frequently develop, and to a lesser extent, in moist rain forest.

The branching stems grow upwards and produce shorter leaves than D. teretifolium. The leaves are ribbed and though quite large in diameter at the base, they become progressively shorter higher up the stem. As growths often become top heavy and flop over, plants are frequently very untidy. The flowers have shorter, broader segments than D. teretifolium. They are produced singly rather than on racemes and are a greenish colour with darker striations. The labellum is white with several irregular purple markings. The flowers are produced from September to November. It will grow well on hardwood, tea tree, fibre or live trees, and likes about 50% sun. If plants are in poor condition when collected, place a little sphagnum moss around the roots.

D. racemosum was confused with D. beckleri for many years, first under the name of D. beckleri and later as D. beckleri var. racemosum. It is usually found on trees growing singly or in small groups alongside roads and in paddocks on the Atherton Tablelands of north Queensland. Like D. teretifolium var. fasciculatum it avoids the rain forests, because of their lack of sun.

The areas where it grows receive a high rainfall, frequent fogs and heavy dew. Many plants of D. racemosum grow in full sun under these conditions. It is also found in small numbers near the Lower Russell River on the north Queensland coast.

This species is remarkable for its stout woody stems (the thickest in this section of the genus Dendrobium) and its small fine root system. The flowers are normally a rather dull yellow. A plant I obtained in January 1964, produced apricot coloured flowers on all of its six spikes when it flowered last spring. These flowers were much more attractive than the yellow form. I had 3 other plants growing with this plant and they all flowered normally.

The flowers of this species are similar to those of D. teretifolium but the segments are more slender, I find this species will grow well on tea tree, dry fibre, frangipani trees and hardwood.

Continued on page 120.

The Fleshy Leaved Australian Dendrobiums. continued.

If watered daily it will take full sun though it grows and flowers satisfactorily with about 50 to 60% sun.

D. mortii grows from Lismore northwards.

Its normal home is upon rocks or trees near fairly open dry creeks, rather than sheltered rain forest. Near Mackay Harbour, Queensland, Mr. W. Mitchell of Paddington, Brisbane, has found it in mangrove swamps - a habitat quite different to its normal one.

In north Queensland it takes to the very dry areas (except in the wet season between late January and April) like Proserpine and a very dry area some miles west of Ravenshoe north Queensland, where Mr. A.W. Dockrill has found it recently.

In these north Queensland areas it grows near creeks.

The plant, like D. beckleri grows upright and has ribbed leaves, but they are much thinner, lack the tendency to get small very quickly as do those of D. beckleri and are not blotched with dark purple, whereas those of D. beckleri often are. In D. mortii only a few small spots are sometimes present.

The roots are much thicker than those of D. beckleri and D. racemosum and are almost as thick as those of D. teretifolium. This species produces its pairs or more often double pairs of flowers between January and May in Sydney. It produces at least 3 crops of flowers, the middle often being the best. Bad weather is likely to greatly shorten the lasting period of the flowers.

The sepals and petals are much shorter and rounder than those of D. beckleri, D. teretifolium and D. racemosum, and are a beautiful shade of green with faint inconspicuous reddish markings on the back. The labellum is white with light green ridges. The plant is quite showy and a much tidier grower than D. beckleri. When in full flower the flowers give the appearance of a moth or bee resting on the plant. In my opinion this is a very desirable species to own, like D. teretifolium var. fasciculatum the floral variation is very slight.

It will grow well in 50 to 60% or more sunlight on tea tree, dry fibre, frangipani trees and on hardwood. On the last mentioned the roots attach themselves very tightly, even if the hardwood surface is smooth. Like all of the species of this group with branching pendulous stems it can become an untidy plant, unless straggly pieces are removed.

D. tenuissimum is found growing from the southern approaches of Barrington Tops to the mountains of south Queensland. It avoids the lowlands and keeps to the ranges where fogs and heavy dews are frequent. It is a small species with very fine pendulous wiry branching stems. The plants normally are up to about 2 feet in length but an exceptional one in the collection of Mr. K. Ellis of Gloucester N.S.W. measures over 6 feet. The leaves of this species are ribbed and small - about 1" to 3" in length. The roots are a distinct reddish colour. The flowers are large in comparison to the plant and are greenish. The labellum is white and irregularly marked with rich purple. An exceptional form in the collection of the author and Mr. W. T. Upton, has flowers about twice normal size with the mid lobe of the labellum being wholly rich purple, with a white margin. These plants were collected near Gloucester N.S.W

D. tenuissimum is slower to settle down than most of this group and requires damper conditions than those mentioned so far. I find it grows well on tea tree. One piece I put on fibre suffered root burn, doubtlessly because this particular piece of fibre was unsuitable. I imagine it would do very well on staghorn or elkhorn fibre (Platycerium species). It makes aerial roots quite freely and therefore can readily be propagated.

D. striolatum is unique in this group of orchids, in that it is essentially a rock dwelling plant and is strictly a southern orchid, having never been found north of the wide Hunter River Valley which has proved a barrier to many orchid species. It is common on cliffs and rock faces in the mountains of central and southern N.S.W. The author observed it on cliffs right in front of frequently used lookouts in several areas in Central N.S.W. The only areas of the coast of N.S.W. where it is found are either a considerable distance from the sea and/or at a considerable altitude, i.e. near Warragamba Dam. It is fairly plentiful in parts of

Continued on page 121.

The Fleshy Leaved Australian Dendrobiums. continued.

eastern Victoria on granite and porphory rock surfaces. In N.S.W. it grows on sandstone as well as granite and porphory. D. striolatum is the only Dendrobium found in Tasmania (where common on parts of the granite north-east coast) and on the Bass Strait Islands (Flinders Island, Cape Barren Island and Clarke Island). New Zealand's Dendrobium cunninghamii deprives it of the honour of being the world's southernmost Dendrobium by extending to Stewart Island. D. cunninghamii is not a member of the group under discussion.

The author has compared Tasmanian specimens of D. striolatum with specimens of the mainland form and has noticed no significant difference. This species produces branching wiry stems which produce roots very freely. This results in the formation of thick mats. The leaves are normally 1" to 3" long, slightly curved and ribbed. D. striolatum seldom hangs very far from the rocks, except at the bottom of shady perpendicular rock faces where it hangs down 18" or more. If plants are growing in a sunny position, the leaves often take on reddish-purple pigments.

The flowers are produced singly or in pairs, between September and November. They have fairly short rounded segments which are yellowish with darker striations. The labellum is white.

This plant will grow on sandstone, fibre, cemented up terracotta pipes and even tea tree or hardwood.

D. foederatum was found in fair numbers in a limited area near Cairns aerodrome, but unfortunately was destroyed in expansion of the airport. The author knows of only a few plants of it in cultivation. It was found growing with D. rigidum and D. teretifolium var. fasciculatum on mangrove trees. It appears to be related to both of the last mentioned Dendrobiums.

The author has only seen two plants of it. The stems did not branch and become pendulous as do those of D. rigidum and D. teretifolium. Instead, it more or less scrambled along and sent out roots along the stem. A plant of D. teretifolium var. fasciculatum I have had for 3 years, persists in this strange habit.

The leaves of D. foederatum are about 3" or 4" long and about twice as thick as those of D. teretifolium. The plants the author saw were growing in small pots of fibre. No doubt the species would also grow on blocks of wood,fibre etc. Its flowers are white and resemble those of D. teretifolium.

D. wassellii was only discovered very recently at Rocky Creek, north of Coen, Cape York far north Queensland. Its leaves are similar to those of D. foederatum but are blunter. It produces far more flowers than D. foederatum and these are not unlike those of D. linguiforme. I have only seen the dried type specimen at the Brisbane Herbarium. Whether or not it has D. rigidum and D. foederatum's resistance of cold in Sydney remains to be seen.

D. baseyanum. This species grows on trees near Cooktown. Its leaves are like those of D. teretifolium but much longer and thinner. I have not seen this species, nor have I seen a picture of it. As for its culture, see D. wassellii.

D. grimesii is another unhappily rare species. It is found on the Atherton Tablelands where it grows with the allied D. teretifolium var. fasciculatum and D. racemosum. I have only seen two plants of it. One was a division from the other. Like D. foederatum it had a semi scrambling habit which may disappear as the plants grow larger. The leaves are shorter and thicker than those of D. teretifolium. The flowers are like those of D. teretifolium var. fasciculatum, but differ in that the sepals and petals are shorter and thinner and the former are 3 nerved not 5 nerved. The mid lobe of the labellum is completely devoid of the lateral veins. The two plants I saw are growing in heated glass houses, one on a pot, the other on tea tree. In view of the cool temperatures experienced on the Atherton Tablelands and the hardiness of this section of orchids generally I feel they would at least do as well in outdoor conditions in Sydney.

D. linguiforme var. linguiforme is common from at least as far south as Mt. Dromedary near Narooma N.S.W. to south Queensland. The furthest south the author has seen it is between Moruya and Bergalia, where it grew on swamp oaks (Casuarina glauca) with D. teretifolium.

Continued on page 122.

The Fleshy Leaved Australian Dendrobiums. continued.

Its favourite hosts are Casuarina glauca the swamp oak and Casuarina cunninghamiana, the river oak. I have seen it on tea tree (Melaleuca species) near Narrabeen (Sydney district) and near Kempsey N.S.W. Around Sydney it is very common on sandstone. It is essentially a creeping species with a very tough stem. The leaves are oval to lanceolate shaped and bear several ribs. They closely resemble a tongue or thumbnail.

Like D. teretifolium, D. beckleri, D. racemosum and to a lesser extent D. mortii, it develops dark purple blotches in the leaves when grown in the sun.

It flowers between August and November, depending on the area. The flowers are showy, numerous, white and feathery (rarely cream, and when dying pink, thereby accounting for some of our "pink rock lillies"). All the segments are long and slender, except the short labellum which has yellow in it. Whether in cultivation or in the wild state, this species flowers much better in full sun, than in shaded conditions. Plants in full sun often almost completely hide their leaves with feathery white flowers. It will grow well on fibre, tea tree, jacaranda or frangipani trees or hardwood. I prefer the last mentioned, but believe the amount of light it receives to be more important than the growing medium.

Like all my orchids out of pots, it is watered every evening except in winter, when I water it every morning. This I think helps prevent sun burn and makes plants grow far better than they would otherwise.

D. linguiforme var. huntianum is a June flowering variety found near Ipswich, Queensland. It reverts to the typical variety under continued cultivation and now of course must be regarded as a synonym for D. linguiforme var. linguiforme.

D. linguiforme var. nugentii is the north Queensland variety which is found on trees in dry creeks near Proserpine Qld., and on isolated groups of trees on the lush Atherton Tablelands. Its leaves are larger and rougher than those of the typical variety. The flowers have much shorter segments than the typical variety and are more crowded on the raceme. I cultivate exactly as the typical variety. Like all this species in this group, in my experience, it does not require glass house conditions in Sydney.

D. cucumerinum grows on the coast and tablelands, between the Burragorang Valley near Sydney, to at least as far north as Toowoomba in south Queensland. It is not a common species except in limited areas. In its coastal habitats it usually grows about 20 or more miles from the sea, where temperature extremes are greater. This results in it drying right out each day and fairly heavy dews at night and fogs are not infrequent in many areas where it grows. Its favourite host is the river oak (Casuarina cunninghamiana). I have only seen it in 3 areas, Burragorang Valley, Gloucester and near Toowoomba. In the former 2 areas it was on river oaks, but in the latter, it was half way up a hill made entirely of loose stones. It was on red cedar (Toona australis) and Moreton Bay Fig trees (Ficus macrophylla).

The trees were few and isolated. The temperature in the area in summer was extremely hot, while in winter heavy frosts are common. The presence of these 2 rain forest trees in such an area shows that obviously the area is wetter than it looks. Remarkably enough, both D. linguiforme and D. cucumerinum were absent from the river oaks growing alongside the creek at the bottom of the hill. D. linguiforme grows with D. cucumerinum in most, if not all areas where the latter species is found.

The leaves of D. cucumerinum are very thick, tough and tuberculate, closely resembling small gherkins. The stem is tough and creeping, like that of D. linguiforme. D. cucumerinum flowers in late spring, summer and early autumn. It is definitely an irregular flowerer. The racemes are short and the flowers are white or greenish, with reddish stripes. It is a much slower grower than D. linguiforme and prefers more shade, favouring the underside of branches and the southern side of trees. To grow it well the following rules must be applied:

(1) It likes shade, but is unharmed by wind.
(2) It likes to be wet at night, but dry out thoroughly each day.

Continued on page 123.

The Fleshy Leaved Australian Dendrobiums. continued.

(3) When collecting the species, it is best to only take the young, growing ends of the plant (the front 6 leaves are enough). Old pieces will only remain dormant for years before dying, but, if left in nature, will often shoot out again.

I prefer a rough piece of hardwood to grow it on and have it hanging in a shady position from a tree. It gets the full strength of westerly and southerly winds and is growing very happily.

D. pugioniforme grows between Bega N.S.W. and at least 20 miles north of Nambour Queensland, where the author and Rodney Jeffers found it in January 1964. It is a mountain species, though it sometimes appears on the coast i.e. The Royal National Park near Sydney, and the Hawkesbury River area north of Sydney. Its normal home is on trees in rain forests where conditions are damp, shady and mossy. Here it often hangs down well over 4 feet. It has been found on rocks in quite a number of areas. The stems are thin, wiry and pendulous, while the leaves are flat, oval to lanceolate and for this group, fairly thin. Often the points are quite sharp. Sometimes 3 edged leaves are produced. The flowers appear between September and November. The flowers are normally solitary, or sometimes 2 or 3 together, and have fairly broad green segments, while the labellum is white and irregularly marked with purple as in D. beckleri and D. tenuissimum.

Although the individual flowers are pretty, they are not produced in sufficient quantity to be showy. I find this species needs more shade and water than D. teretifolium and D. beckleri etc. and does well on tea tree in a shaded, reasonably sheltered position. It will also grow on fibre and other media if the water can be kept up to it, or atmospheric conditions are damp enough.

D. rigidum is confined to coastal tropical Queensland and extends to the coastal ranges, but is absent from the highlands. The author and Mr. A.W. Dockrill found small quantities of it in mangrove swamps near Cairns. Around Cooktown it is much more common on open forest trees near the coast. It is fairly common on Cape York. The species has branching pendulous stems from which thick fleshy oval to lanceolate leaves grow. These always give the author the impression that they are too heavy for the plant. In Sydney it flowers irregularly through the warmer months of the year, with the main crop being in spring. The segments of the flowers are short, round and yellow or pinkish. The labellum is the same colour but marked with red.

This species will grow out of doors in Sydney despite its strictly tropical origin, on tea tree or fibre. I have found it susceptible to sun burn and am now giving it less sun than I did previously. The conditions where the author found it were quite shady.

D. lichenastrum has a bewildering number of leaf forms which have caused confusion. D. lichenastrum var. lichenastrum has round to oval leaves like a miniature D. linguiforme, however, they are not grooved, As with all the forms of D. lichenastrum, it has a creeping stem and the leaves have a pitted pattern if examined closely. The flowers in one fairly common form of D. lichenastrum var. lichenastrum are pink and beautifully striped with darker pink. Most other forms are pink to yellowish. All forms of this species have short segmented cup shaped flowers.

D. lichenastrum var. prenticei is, if possible, more variable than var. lichenastrum. Its leaves are longer and thinner than the latter though they vary enormously. The flowers are very similar to those of the typical variety.

D. lichenastrum var. prenticei forma aurantiaco-purpureum is very similar to typical D. lichenastrum var. prenticei, but differs in having a blunter column foot or spur and the flowers are pink to reddish with darker stripes.

D. lichenastrum forms are common in the better watered parts of the ranges and highlands of north Queensland. They grow on both rocks and trees, though mainly the latter. D. lichenastrum var. lichenastrum prefers forest conditions (often on the higher branches of large trees). D. lichenastrum var. prenticei often grows under the same conditions but is quite common on isolated trees with D. racemosum, D. teretifolium var. fasciculatum, Mobilabium hamatum in paddocks and alongside roads. The typical form of the species in my experience was absent there.

Continued on page 124.

The Fleshy Leaved Australian Dendrobiums. continued.

I find that D. lichenastrum and forms grow well on staghorn or elkhorn fibre (Platycerium species) in about 50% sun or a little less. They also do well on tea tree if conditions are damp enough. This group of orchids flower at almost any time of the year but some forms, particularly the type form are more noticeably Spring flowering in Sydney.

D. toressae. This species is the baby of the family and is quite possibly the smallest Dendrobium in existence. It grows from near Tully north Queensland, to near Cooktown. It is found in rain forest on trees in the ranges and on rocks in dry Eucalypt forest in the highlands. The small grooved leaves are not unlike a grain of wheat.

The stem of this species is slender and brittle. The flowers appear from the groove in the leaf. They are large for the size of the plants, are yellow and have short segments. They last for 2 or 3 weeks. This species does well in Sydney on staghorn fibre (Platycerium species) in 50% or more shade. If in a damp position it will do well on tea tree and like D. lichenastrum it produces its flowers singly.

The following suspected natural hybrids occur.

D. tenuissimum X D. pugioniforme. Mr. L.W. Archer of Coffs Harbour found two plants in the ranges near Coffs Harbour. It was growing in association with the suspected parent species. Its roots are reddish, like those of D. tenuissimum and the leaves are about 2" long and about 1/6" wide, but, instead of being conical and ribbed they are flattened or 3 angled like those of D. pugioniforme. The flowers are similar to those of D. tenuissimum and have a beautifully marked labellum. It is a very charming little plant.

D. teretifolium var. aureum X D. beckleri. A single plant of this cross was found in association with suspected parent species in an area not a great distance from Mt. Glorious near Brisbane.

Its habit is intermediate between the suspected parent species, as yet it has not flowered.

The plant was found by the author and Mr. W. Mitchell, of Paddington Brisbane.

Possibly some of the rarer north Queensland species are of hybrid origin.

S.C. Clemesha, 3 Consett Street, Concord West. N.S.W.

ORCHIDS AT BEECHWORTH.

Sylvia L. Harvey.

The Beechworth district, which is near Wangaratta in north-eastern Victoria, is rich in terrestrial orchids. I believe that there are at least sixty different species, although some have, as yet, eluded my eyes.

In one small area, which is quite close to the town I have seen many Pterostylis species clustered amongst the granite outcrops. Pterostylis nutans, P. curta and P. longifolia are quite common. With a little patience P. nana, P. pedunculata, P. mutica and P. barbata can be located. Of the rufous group, P. pusilla, P. rufa and P. squamata are represented. In autumn P. parviflora and P. revoluta may be seen, whilst winter yields P. alata and P. vittata. The area is not without its Caladenias. In one spot, C. patersonii reigns queen, but C. dilatata dances in the sunlight everywhere. The dainty C. deformis, C. augustata and C. carnea are not uncommon, but only once did I find C. cucullata.

In the open spaces near the area the Diuris bloom. Diuris maculata, D. sulphurea, D. pedunculata and D. palachila tint the grass with yellow.

Less conspicuous are Spiranthes sinensis and Prasophyllum nigricans (it's a wonder I spotted this!).

Close to the earth, in more sheltered areas are found Acianthus reniformis, Chiloglottis trapeziformis and Corybas diemenicus. To add a touch of blue are Glossodia major and several of the Thelymitra species. In autumn, when the bright colours have gone, Eriochilus cucullatus keeps the few Pterostylis company.

For other Beechworth orchids I must go farther afield, slightly higher for Dipodium punctatum and Gastrodia sesamoides, to a swamp for Microtis unifolia and Pterostylis falcata. This stately orchid was well worth the mud I had to walk through.

Continued on page 130.

CRYPTOSTYLIS SUBULATA - AN OBSERVATION.

F.M. Coate

The recent observations of B. Whitehead regarding the pollination of Cryptostylis subulata brings to mind my own experience with the species. I had brought home a spike of C. ovata to photograph and was carrying it outdoors to a sheltered spot when there was a flash past my face. An ichneumon wasp (Lissopimpla spp.) which was already joined with a mate, darted towards the flower, violently discarding his lady-love in mid air. He alighted and backed into the flower, utterly ignoring the lady who sat disconsolately beside him for a while before flying off. I photographed the male before he left the flower and was amazed at the size of the load of pollen he carried. As my own plants flowered I was able to obtain further photographs of this phenomenon.

When photographing, I learned to take my time as the wasps are rarely in a hurry to leave the flowers and sit preening their antennae and wash their faces like a cat. They often leave the flowers for a short time, only to back in again.

I soon learned to bring the plant indoors at night when I wanted to photograph a wasp with pollinia attached. If left outdoors one finds that at sunrise the visitors have been and gone. On one occasion I forgot the plant until 10 p.m., upon retrieving it I found a wasp in the bloom.

It was not enough to place the plants in a dark shed, I had to cover them with polythene. The first time I did this, I used a bag with quite a small hole and next morning two wasps were frantically trying to find the way in, not out. They each had a load of pollinia from the blooms.

The flowering period covered some weeks and on all but very dark, cold days the flowers were visited by wasps. Sometimes two at a time in the one bloom.

Last year the final flower was burdened with five ichneumon wasps, as if they knew this was the last bloom of the season. The camera, of course, was safely indoors.

Probably owing to the long cold and very wet winter last year, the wasps have been very scarce. I have only noticed two or three in the garden and only two seed pods developed. In the bush too it was the same story over a wide area. I found very many spent flower heads, but only one seed pod.

My plant has been in cultivation for five years and although it blooms well, with flowers much larger than the bush ones, it never increases. However, the Ichneumon wasps and I have a lot of fun each year.

F.M. Coate, 14 Ecclestone Street, Bunbury. W.A.

NEW RECORDINGS FROM TASMANIA.

R. Curtis.

We have received some recordings of notable interest from Mr. John Firth in Tasmania. Caladenia dilatata var. concinna was found at Bicheno, on September 10th, 1964. This was confirmed by Mr. J.H. Willis, who stated that this find, as well as being a new one for Tasmania, was also a very unusual one. The nearest locality in which this species had been found was in the dry areas of the far west of Victoria.

Thelymitra ixioides var. truncata (Rogers) Nicholls, was also found at Bicheno, on November 14th, 1964, and classified by Mr. J.H. Willis.

Mr. Firth has also made a few tentative recordings, subject to confirmation by other experts; they are Microtis orbicularis found at Rocky Cape, on December 4th, 1964.

Thelymitra pauciflora var. holmesii and Prasophyllum parviflorum (location not given), the latter two are fairly rare Victorian species.

We hope that the above somewhat rare and unusual recordings will stimulate further interest in our readers, to the extent of an increase in the activity of our Records Secretary.

R. Curtis, 11 Tudar Street, Sutherland. N.S.W.

BULBOPHYLLUM GLOBULIFORME. Nich. in Orch. Zeylanica, 1938.

S. C. Clemesha.

Little has been seen of this orchid, perhaps the smallest in the world, since its discovery by A. W. Dockrill in 1938. The plant was found on Hoop Pine trees (Araucaria cunninghamii) growing on the foot hills of the Macpherson Range.

The only record the author can find, other than those made by Mr. A. W. Dockrill (who found it in 3 separate areas), is a find by Mr. T. E. Hunt and A. J. Timperley at Bryden in south Queensland during 1943.

The author has heard of the species being collected more recently near Kyogle.

Recently a small part of O'Rielly's property near the Lamington National Park, south Qld., was cleared and Mr. W. Mitchell and C. Harman investigated reports that B. globuliforme was to be found on some of the fallen hoop pine trees.

After searching some of the trees, B. globuliforme was found, though unfortunately in small quantity. B. weinthallii and Dendrobium schneiderae were growing on the same tree and Sarcochilus falcatus was found nearby. B. globuliforme grew chiefly on the underside of the branches that were above the level of the neighbouring smaller trees. This allowed them to get plenty of dew, as the luxuriant growth of moss verified. The altitude of the area was about 3,000 feet above sea level.

I was fortunate in receiving a specimen of the limited material for identification. This species is very similar to B. minutissimum, but the pseudobulbs are about 1/3 smaller (hardly more than 1 mm. in diameter) quite globular in my specimens and producing a fine, very diminutive, lanceolate leaf which is about 2 mm. long, and about twice the length of B. minutissimum. The plant creeps rather extensively on trunks and branches of trees. The flowers are larger than those of B. minutissimum, white, and on stems about 1 cm. high whilst B. minutissimum produces reddish coloured flowers on very short pedicels. Both species flower in November.

B. globuliforme's differences from B. minutissimum do not become obvious till the two are compared. The globular pseudobulbs of B. globuliforme and the orbicular-flattened pseudobulbs of B. minutissimum help. The best guide is the growing area and conditions.

Cultivation of B. minutissimum has proved a problem to many, because of its refusal to grow on tree fern fibre. It does well on paper bark logs in a shaded position, if they are watered frequently.

Mr. E. L. Bradford is having success with growing it on cork.

I imagine B. globuliforme would do best if treated in the same manner. My small specimen of B. globuliforme is affixed to paper bark with knitting wool and is making new roots and pseudobulbs.

When searching fallen hoop pines the branches should be examined carefully for B. globuliforme, as it is not conspicuous among the moss and lichen.

A FAST GROWING ORCHID.

W. H. Murdoch.

Taeniophyllum muelleri is one of the smallest, and possibly the fastest growing orchids to be found in N. S. W. where it is found on hoop pine (Araucaria cunninghamii). A leafless and almost stemless plant, with undulate creeping roots. The filiform flower scapes do not exceed 2 cm., with racemes of 1-3 minute greyish-green flowers. The size of the flower may be judged from the fact that the labellum is hardly more than 1 mm. long. The species flowers chiefly in the Winter.

That it is a fast grower is proved by the fact that plants can be found attached to quite newly grown foliage.

I have successfully attached a plant to a specimen of Araucaria cunninghamii in the nursery.

W. H. Murdoch, Robey Road, Coal Point 2N. Toronto. N. S. W.

THE PTEROSTYLIDS OF NEW ZEALAND.

E. D. Hatch.

For the purposes of this paper the New Zealand species of *Pterostylis* may be divided into 3 groups -

(A) *Forms identical with Australian species* -

Most of these have, at some time or other, worn different names on either side of the Tasman sea. As long ago as 1864 J.D. Hooker (*Handbook N.Z. Flor.* p. 269) discussed the close affinity of *P. nana-puberula*. In *Trans. N.Z. Inst.* 7:p. 352. 1875 Cheesman proved the New Zealand *P. squamata* Hook. f. (not of R. Brown) to be *P. barbata* and in 1883 recorded P. mutica from New Zealand. In 1930 Rupp (*Guide Orch. N.S.W.*) united *P. nana-puberula* (p. 105) and *P. nutans-matthewsii* (p. 103), and in Proc. Linn. Soc. N.S.W. 70:p. 53. 1945 Rupp and Hatch added P. *foliata-gracilis* and *P. furcata-micromega* to the list. Finally in 1953 Hatch recorded *P. cycnocephala* from New Zealand.

1. *P. Barbata* Lind. Swan River Appendix p. 53. 1839
   syn. *P. squamata* Hook. f. *Flor. Nov. Zel.* 1:p. 249. 1853
   (not of R. Br.)
2. *P. cycnocephala* R.D. Fitzgerald *Austr. Orch.* 1:2; 1876
   Hatch *Trans. R.S.N.Z.* 80;p. 325. 1953
3. *P. foliata* Hook. f. *Flor. Nov. Zel.* 1: p. 249. 1853
   syn. *gracilis* Nich. *Victr. Natr.* 43: p. 324. t. 1927
4. *P. furcata* Lindl. *Gen. et Spec.* Orch. p. 390. 1840
   var. *micromega* (Hook. f.) Hatch *Trans. R.S.N.Z.* 80:p. 326
   1953 syn. *micromega* Hook. f. *Flor. Nov. Zel.* 1:p. 248. 1853
5. *P. mutica* R. Br. *Prodr.* p. 328. 1810
   Cheesman *Trans. N.Z. Inst.*, 15: p. 300. 1883
6. *P. nana* R. Br. *Prodr.* p. 327. 1810
   syn. *puberula* Hook. f. *Flor. Nov. Zel.* 1: p. 249. 1853
7. *P. nutans* R. Br. *Prodr.* p. 327. 1810 var. *nutans*
   syn. *matthewsii* Cheesman. *Trans. N.Z. Inst.* 47:p. 46. 1915

All appear to have been windborne across the Tasman sea.

(B) *Endemic forms with Australian affinities* -

8. *P. furcata* Lind. var. *linearis* Hatch *Trans. R.S.N.Z.* 77: p. 243. 1949

   A small short-sepalled form with narrow-erect leaves, apparently adapted to a close-growing *Hypolaena* bog association.

9. *P. humilis* R.S. Rogers *Trans. R.S. South Aust.* 46:p. 151. 1922

   A montane semi-rosetted species related to *P. cucullata* R. Br. It is self-fertile. The column is erect and the sensitive pollinia fall at a slight touch to the flower. The stigma is globose and very large, protruding forward beyond the vertical line of the anther. The lower lobes of the column-wings are strongly incurved and guide the falling pollinium on to the stigma. The plants grow as a rule in groups and are particularly conspicuous in the autumn when the large leaves turn silver-yellow before disappearing.

   P. trullifolia Hook. f. *Flor. Nov. Zel.* 1: p. 249. 1853

   The specific type is at present unknown but eventually I suppose one of the varietal names in use will have to give way to var. *trullifolia*. They are most useful as experimental plants since they go through 3 distinct stages of growth.

   (i) juvenile non-flowering, with petiolate-rosulate leaves only.

   (ii) intermediate flowering, with both petiolate-rosulate and sessile-bracteate leaves.

   (iii) mature flowering, with sessile-bracteate leaves only.

   The degree of development depends entirely on the size of the tuber and not on its age. (i.e. on the amount of food reserves available.) By retarding a mature plant I have produced small tubers which have grown the following season into juvenile rosettes. Again the mycorrhizome, which in this species has long-petiolate, trullifoliate leaves, produces up to seven tubers of varying size and these may - 18 months from seed - grow into rosettes or flowering plants as follows -

Continued on page 128.

The Pterostylids of New Zealand. continued.

4 mm. diameter and smaller - rosettes.
5 - 6 mm. diameter - intermediate flowering.
7 mm. and larger - mature flowering.
(Similarly in the Australian P. coccinea - another useful experimental species - tubers 12 mm. and larger produce flowering plants, while those below 12 mm. produce only rosettes).

10. P. trullifolia Hook. f. var. rubella (Col.) Hatch (Trans. R. S. N. Z. 77: p. 244. 1949
Related to P. obtusa R. Br., it has cobra-hooded flowers and comparatively large leaves bunched near the top of the stem.

11. P. trullifolia Hook. f. var. gracilis Cheesem. Trans. N. Z. Inst. 47: p. 46. 1915
Smaller-flowered and more slender than P. rubella and flowering some 2 months later. The mature leaves are scattered equidistant on the stem, and the rosette leaves have the veining embossed.

12. P. trullifolia Hook. f. var. alobula Hatch Trans. R. S. N. Z. 77: p. 244. 1949
As the name suggests this lacks the protruding sepalar lobe so characteristic of the P. obtusa group and is related to both P. venosa and P. irsoniana. The rosette stage is indistinguishable from that of P. rubella. The labellum is subulate in its upper third and the apex is clavate.

13. P. venosa Colenso Trans. N. Z. Inst. 28: p. 610. 1896
Another montane semi-rosulate species with a trullifolioid flower. It appears to have affinities with both P. trullifolia var. alobula and P. foliata, and has at times been confused with P. humilis. The erect flower and globose stigma of the latter, however, make for positive identification.

(C) The endemic grass-leaved species -
These appear to have arisen from a rosulate form like P. foliata, and to have differentiated largely by epharmony, complicated by hybridism. They may be divided into 2 groups according to the type of labellum.

(i) in which the labellum-tip is unevenly constricted -
P. foliata - normally rosulate with one or two stem bracts, but when growing in a close association or in scrub the rosette leaves tend to scatter up the stem.

14. P. areolata Petrie Trans. N. Z. Inst. 50: p. 210. 1918
This species is peculiar in that it sports both labellum-types, apparently without cause. The leaves may be subrosulate or cauline and all 4 forms may often be found growing together in a single colony. The sepals are shortly acuminate as in montana.

15. P. australis Hook. f. Flor. Nov. Zel. 1: p. 248. 1853
A broad-leaved form with short subulate lateral sepals.

16. P. montana Hatch Trans. R. S. N. Z. 77: p. 239. 1949 var. montana.
Narrow leaves with often repand margins and short acuminate lateral sepals.

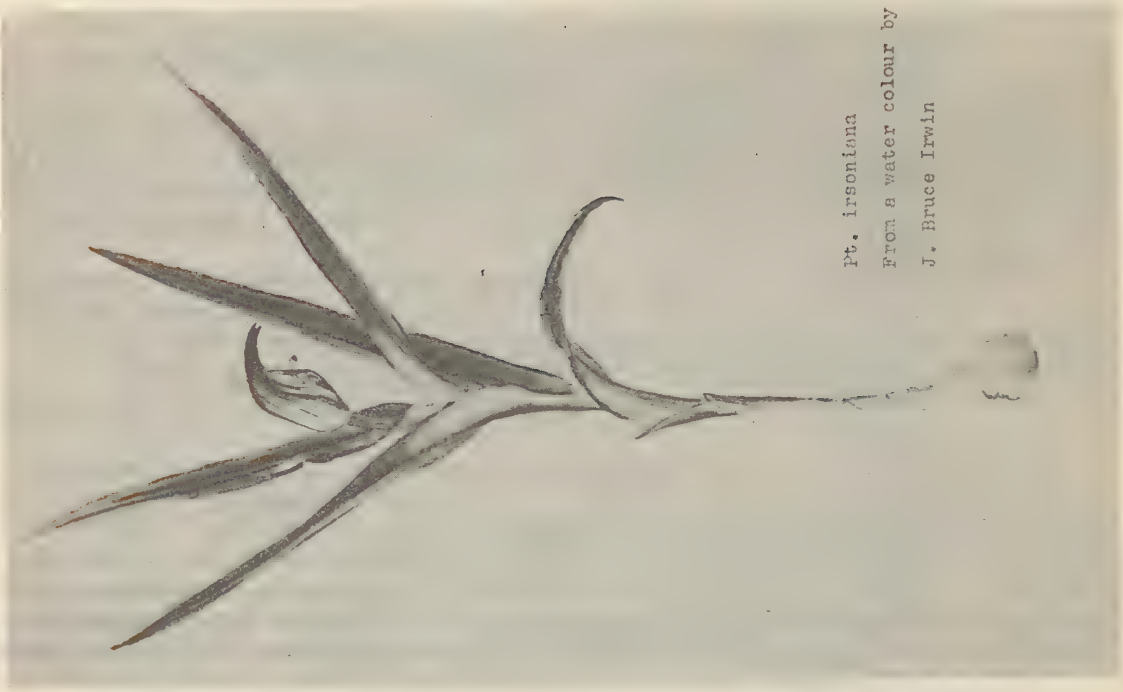
17. P. montana Hatch var. rubricaulis (Matth.) Hatch Trans. R. S. N. Z. 77: p. 240. 1949
A northern lowland form confined apparently to the vicinity of the kauri (Agathis australis). The leaves are more or less horizontal to the stem and the sepals shortly filiform.

(ii) in which the labellum-tip is entire, flat and symmetrical-
areolata, as I said above, occurs in this group also

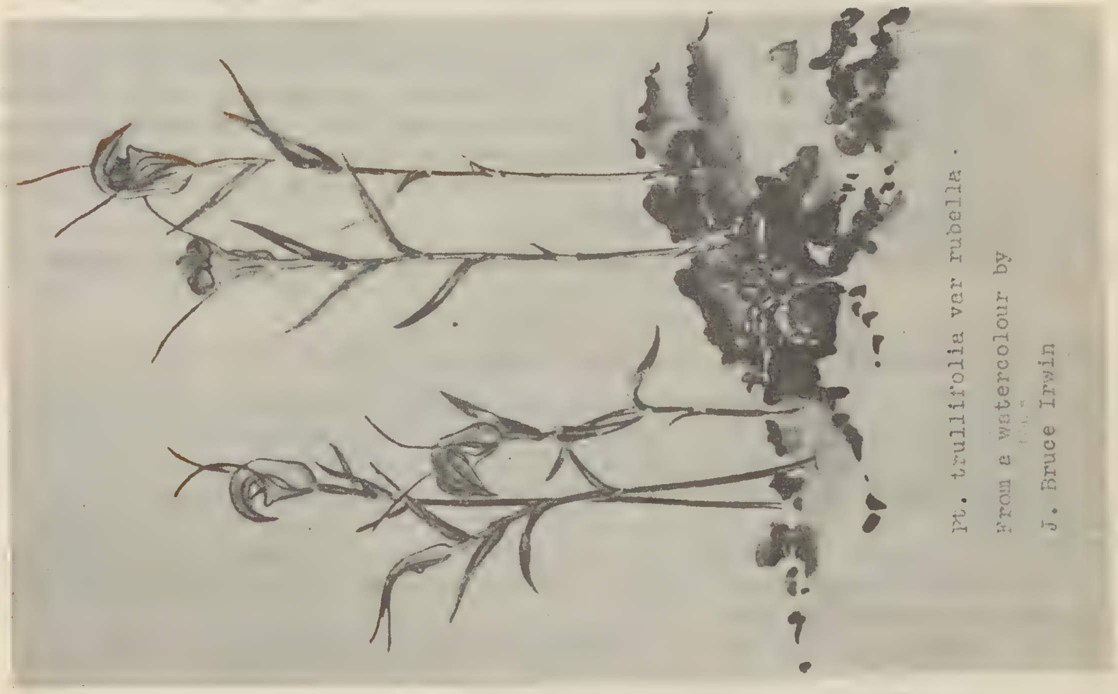
18. P. oliveri Petrie Trans. N. Z. Inst. 26: p. 270. 1894
Here also as in areolata, both rosulate and cauline-leaved forms occur together. The sepals are filiform-caudate and very long, the lateral spreading, the dorsal strongly incurved.

19. P. banksii R. Br. ex A. Cunn. Bot. Mag. t. 3172. 1832 var. banksii
This is THE New Zealand species and was the first Pterostylid to see the light of European day. Collected by Banks

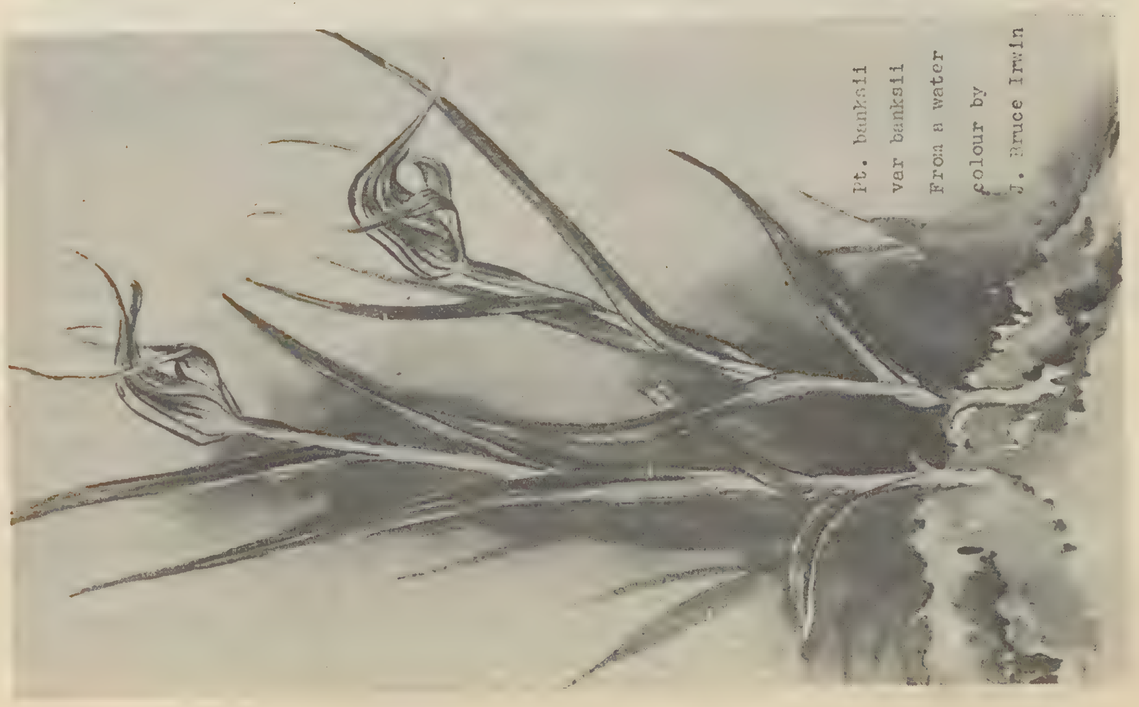
Continued on page 130



Pt. irsoniana
From a water colour by
J. Bruce Irwin



Pt. trullifolia var rubella.
From a watercolour by
J. Bruce Irwin



Pt. banksii
var banksii
From a water
colour by
J. Bruce Irwin

The Pterostylids of New Zealand. continued.

and Solander from Mercury Bay on 8th November 1769, it was briefly described in the Primitiae Florae under the MS name Arethusa tetrapetala.
The leaves are long, narrow and erect, overtopping the large flower. The sepals are filiform-caudate - the lateral spreading and erect, the dorsal horizontal to suberect.

20. P. banksii R. Br. var. patens (Col.) Hatch Trans R.S.N.Z. 75: p. 370. 1945
The montane form of banksii, generally similar in leaf but differing in all the sepals being strongly incurved, the tips of the lateral often meeting behind and below the ovary.

21. P. graminea Hook. f. Flor. Nov. Zel. 1: p. 248. 1853
A slender, long-leaved, small-flowered species with short sepals.

All these forms hybridise freely whenever they come together and intermediates are both common and confusing.

22. P. irsoniana Hatch Trans. R.S.N.Z. 78: p. 104. 1950
This is something of a stray, but very beautiful. It has the leaves of montana, the flower of venosa and the clavate labellum tip of trullifolia alobula. It is easily distinguished by the large callus at the base of the labellum, which is unique in the genus so far as I am aware.

The mycorrhizome is similar in all the grass-leaved species and consists of a small subrosulate plant with rather broad leaves. This recapitulation is I think proof of the groups descent from a rosulate ancestor. The Papuan caulescens L.O. Williams belongs rather obviously in this group also, but whether it is the result of independent development is uncertain. It seems strange that the group should occur in New Zealand and New Guinea and yet be absent from Australia.

E.D. Hatch, 583 Tane Rd., Laingholm Central. Auckland SW4.
N.Z.

Orchids at Beechworth. continued from page 124.

In other areas I have found the dainty Caladenia caerulea, the purple Diuris punctata, Chiloglottis gunnii, Thelymitra antennifera, T. rubra and the hairy Calochilus robertsonii. My latest find was a solitary Caleana major. I hated pressing it, it looked so like a little live creature.
What other lovely orchids have hidden their quaint little faces from me? Next season I must hurry home from school and go a-hunting each day. I wish you could join me.

Miss S.L. Harvey, 2 William Street, Beechworth. Vic.

BILL MURDOCH ON TOUR.

Our President has accepted invitations from Grafton and Tweed District Orchid Societies and intends visiting the north coast during June '65. Members and Societies interested should contact Bill as soon as possible.

LIST OF NEW MEMBERS.

Mrs. L. Murphy, 2 Remsley Court, Hawthorn E3. Vic.
Mr. S.A. Jack, 7 Maubenge Street, Granville, N.S.W.
Miss B. Mentiplay, 5 Foam Street, Hampton. Vic.
Mr. S. Smith, P.O. Box 5169 Machey Street, New Providence, Bahamas.
Mr. R.L. Sheperd, P.O. Box 461, Ingham, Qld.
Dr. A.D. Hawkes, P.O. Box 435, Coconut Grove 33, Florida, U.S.A.
Mrs. T. Powell, Editor, Greater New York Orchid Society Inc.,
338 East 83 Street, NY 28. New York. U.S.A.
Mr. V.S. Summerhayes, The Herbarium, Royal Botanical Gardens,
Kew. Richmond. Surry. England.
Mrs. D. Halpin, Bushland Drive, Taree. N.S.W.
Mrs. A.V. Neal, Henry Flett Street, Taree. N.S.W.
Mr. C.G. Hodgson, Lot 31, Dilkera Avenue, Valentine. N.S.W.
Mr. R.L. Colman, 12 Wetherill Street, Narrabeen. N.S.W.
Miss N. Thackray, 44 Wattle Avenue, Carramar. N.S.W.

THE ORCHADIAN

April, 1965.
Page 131.
No. 11.

Published by The Australasian Native Orchid Society.

Patron: W. T. Upton.
Vice Presidents: Eric Gordon.
J. H. Scott.
Hon. Secretary: R. G. Napier.
Asst. Hon. Sec.: L. Parker.
President: W. H. Murdoch.
Records Sec.: R. J. Curtis.
Treasurer: E. Marygold.
Editor: M. J. G. Corrigan
Asst. Editor: S. C. Clemesha.

Price : 3/-.

SYDNEY GROUP.

Under the able leadership of Dave Hardie the Sydney Group is holding their monthly meetings in Selley's Hall, King York House, 32-34 York St., Sydney. Meetings are varied and prove most interesting. Circle the dates on your calendar, the 2nd Friday in each month.

WARRINGAH GROUP.

Wal Upton has also been very busy and his group are doing much valuable work with their volunteer work parties at Stoney Range. They are bringing many terrestrial orchids into the park from their original sites which are to be used for building development. Warringah Group meets on the 2nd Thursday of each month at Stoney Range, Dee Why. Drop in and enjoy their hospitality.

ORCHADIAN MATERIAL.

The Editor is always very pleased to receive material for inclusion in future issues. The task of extracting material from the "regulars" gets harder with each issue. Please let me hear of some new authors.

TWO NEW JUDGES.

Mr. Dave Hardie and M. J. Corrigan were successful in the recent Judging examinations held by The Orchid Society of N. S. W. and can now judge at monthly meetings of their affiliated societies.

A. W. Dockrill REFERENCES.

For the more serious student, the following is a list of citations which have appeared in - Journal of Orchidology. Published for some time by The Australian Orchid Society, and now out of print.

Tainia parviflora Schltr. Jnl. Orchidology, vol. 2. pp. 14-15. 1961.
Bulbophyllum baileyi F. Muell. Jnl. Orchidology, vol. 2. pp. 54-55. 1961.
Cadetia hispida (A. Rich) Schltr. Jnl. Orchidology, vol. 2. pp. 92-93. 1961.
Chiloschista phyllorhiza (F. Muell.) Schltr. Jnl. Orchidology, vol. 3. pp. 14-15. 1962.
Nervilia dallachyana (F. Muell.) Schltr. Jnl. Orchidology, vol. 3. pp. 74-75. 1962.
Cadetia taylori (F. Muell.) Schltr. Jnl. Orchidology, vol. 3. pp. 148-149. 1962.

ROYAL BOTANIC GARDENS
STH. YARRA, S.E.1, VIC.
10 OCT 1966

Brief Extracts from the Rupp Letters to G. W. Althofer No. 14.

1-5-48: Prasophyllum (pygmies) - Woodford/Lawson area is Miss Bowden's hunting ground. Since January she has brought in 5 new spp. of these (3 from Woodford), all so very distinctive that they can't go into any species. Two of them are most remarkable forms. One I am naming P. anomalum - it sounds like a freak, but quantities were found, and we dissected 40 flowers. The anther and stamens are separate structures; the petals are articulate on claws like the labellum; the column-wings are either quite rudimentary or prolonged into glabrous filaments. Another, to be P. bowdenae has the lateral sepals and labellum enormously developed in proportion to the rest of the flower, which looks as if it were all lateral sepals and labellum.

In addition to the 5 new ones, she has brought in the following, some of which I have not seen for years: P. baueri, P. deaneanum, P. nichollsianum, P. trifidum, P. aureoviride, P. ansatum, P. nigricans, P. rufum, P. densum, P. viride, P. archeri, P. reflexum, P. fimbriatum, P. morrisii and P. ruppii. Some of these are from Woodford, some from northern suburb areas, and 2 new ones from Heathcote.

THE GENERA DIPLOCAULOBIUM AND EPHEMERANTHA IN AUSTRALIA.

A. W.Dockrill

In this paper, the history of, and differences between these two genera are discussed and a new combination, Diplocaulobium masonii (Rupp) Dockr. given for Dendrobium masonii Rupp.

Blume, Bijor. 329 (1825), described the genus Desmotrichum, but Lindley, Gen et Spec. Orch. 76-77 (1840) included its species in Dendrobium. Bentham and Hooker, Gen. Plant 3: 498 (1883), also included this group of species in Dendrobium but under the section Desmotrichum. This latter treatment was followed by most later botanists until A. D. Hawkes, Orchid Weekly 2: 451 (1961), upheld Blume's treatment of the group as a separate genus, but pointed out that the name Desmotrichum could not validly be used and proposed the name Flickingeria in its stead.

P. F. Hunt and Summerhayes, Taxon 10, 4: 101-110 (2-6-1961)(this paper was with the publishers at the time of publication of A. D. Hawkes' paper) likewise considered that the group deserved generic rank, but gave Ephemerantha as the alternative to the name Desmotrichum, and in an appended footnote, pointed out that A. D. Hawkes' name was invalidly published and could not stand.

Kranzlin, in Engl. Pflanz. 4, 50, 2, B, 21: 331 (1910), proposed generic rank for the section Diplocaulobium Reichb. f. of Dendrobium.

J. J. Smith and Schlechter both treated the group as a section of Dendrobium, but A. D. Hawkes, Lloydia 20 (1957) and P. F. Hunt and Summerhayes L. C. upheld its generic status.

When describing Dendrobium masonii in Aust. Orch. Rev. 18, No. 1: 18 (March 1953), Rupp stated that his species belonged to the section Desmotrichum (Genus Ephemerantha). However, the present author contends that it should have been included in Diplocaulobium. A description of the two genera will follow and then the reasons for the contention that Rupp's species should be included in Diplocaulobium.

Ephemerantha.

Rhizome creeping, branching and rooting, bearing a series of rather widely spaced, rootless aerial shoots, which bear, at their apices, a pseudobulb of a single internode. New branches or extensions of the sympodium commence from the bases of the aerial shoots. Leaves not sheathing, solitary from the apex of the pseudobulbs. Flowers fragile, lasting less than a day, born singly or occasionally 2 at a time from a group of small scarious bracts at the base of the leaf (underneath in the Australian species). Mentum rather long. Labellum distinctly trilobate, disc with 2 or 3 ridges which may be straight, curved or wavy, but commence from the base of the labellum; lateral lobes + erect; mid-lobe variable in shape but often cleft into 2. Pollinia 4, in 2 closely appressed pairs without caudicles or stipes.

Diplocaulobium.

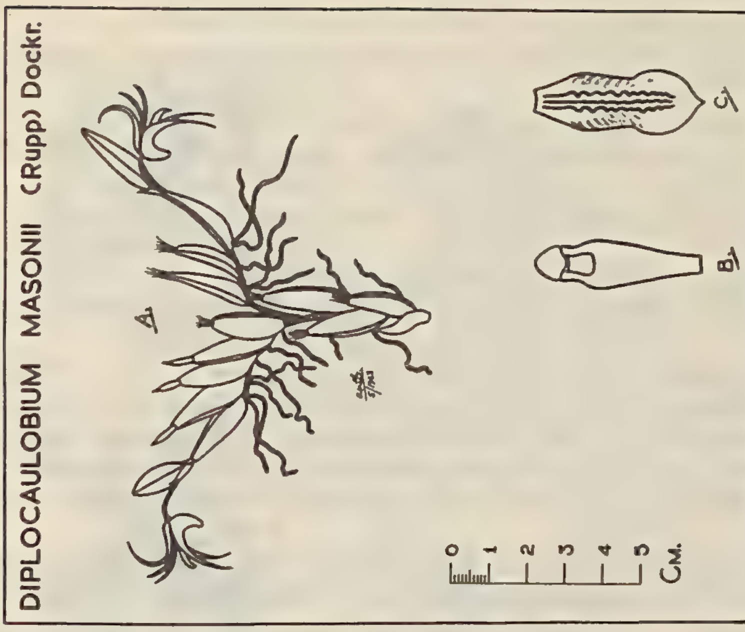
Rhizome creeping and branching and rooting. Pseudobulbs of a single internode, distinctly flattened, closely placed along the rhizome. Leaf not sheathing, solitary from the apex of the pseudobulb. Inflorescence covered by a narrow sheath in the fold of the base of the leaf., producing flowers singly or in pairs at intervals of several weeks, the flowers lasting 1-2 days. Sepals and petals narrow. Mentum rather long. Labellum indistinctly lobate; disc with 2-3 crisped or sinuate ridges; mid-lobe usually rather long and its margins often crinkled. Anther usually very high but shallow. Pollinia 4, in 2 closely appressed pairs without caudicles or stipes.

In D. masonii Rupp there are no rootless aerial shoots from the rhizome and the pseudobulbs are closely placed on the rhizome, flattened and angular, the angles often produced into wings. The inflorescence is covered by a narrow sheath in the fold of the leaf. The sepals and petals are narrow. The labellum is indistinctly lobate; the mid-lobe longer than broad. These features certainly suggest that this species should be included in Diplocaulobium rather than Ephemerantha and the following new combination is given:

Diplocaulobium masonii (Rupp) Dockr. comb. nov.
Syn.: - Dendrobium masonii Rupp, Aust. Orch. Rev. 18, No. 1: 18 (March 1953).

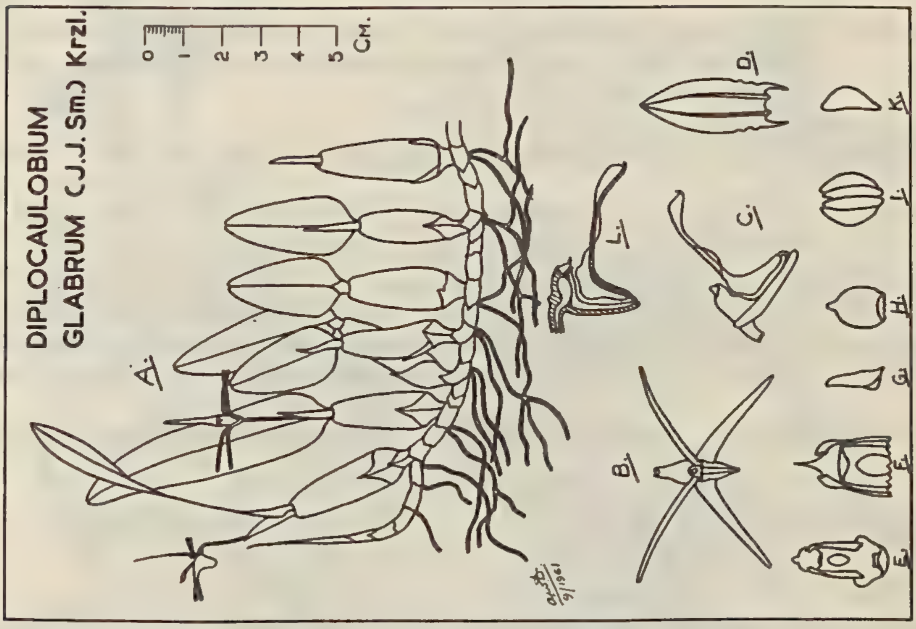
A list of Australian species of the 2 genera now follows;

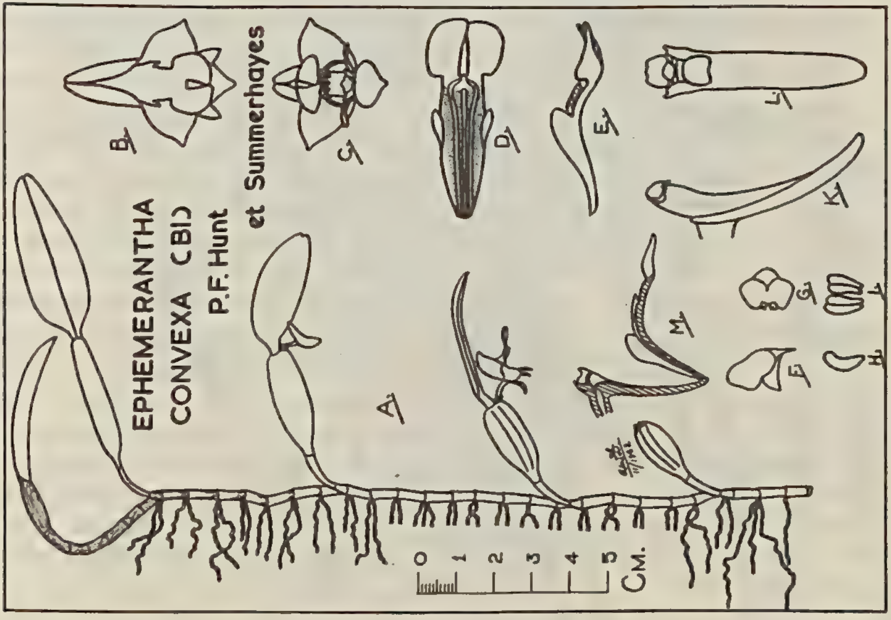
Continued on page 134.



DIPLOCAULOBIUM MASONII (RUPP) DOCKR.

A: PORTION OF PLANT.......................TO SCALE
B: COLUMN FROM THE FRONT..................TO SCALE X 10
C: LABELLUM FROM ABOVE....................TO SCALE X 3
NOTE: PLANT TAKEN FROM HERBARIUM MATERIAL





EPHEMERANTHA CONVEXA (B1) P.F. HUNT ET SUMMERHAYES

A. VERY SMALL PORTION OF PLANT.....TO SCALE
B. FLOWER FROM THE FRONT...............TO SCALE X 3
C. FLOWER FROM BELOW......................TO SCALE X 3
D. LABELLUM FROM ABOVE...................TO SCALE X 4
E. LABELLUM FROM THE SIDE...............TO SCALE X 4
F. ANTHER FROM THE SIDE....................TO SCALE X 10
G. ANTHER FROM ABOVE........................TO SCALE X 10
H. POLLINIUM FROM THE SIDE...............TO SCALE X 10
I. POLLINIA FROM THE FRONT...............TO SCALE X 10
K. COLUMN FROM THE SIDE....................TO SCALE X 5
L. COLUMN FROM THE FRONT..................TO SCALE X 5
M. LONGITUDINAL SECTION OF COLUMN AND LABELLUM....................TO SCALE X 3

DIPLOCAULOBIUM GLABRUM (J.J.SM.) KRZL.

A. PORTION OF PLANT..........................TO IND. SCALE
B. FLOWER FROM ABOVE........................TO SCALE X 2
C. COLUMN AND LABELLUM FROM THE SIDE............................TO SCALE X 5
D. LABELLUM FROM ABOVE.....................TO SCALE X 5
E. COLUMN FROM THE FRONT..................TO SCALE X 5
F. TOP OF COLUMN, ANTHER REMOVED..TO SCALE X 5
G. ANTHER FROM THE SIDE......................TO SCALE X 10
H. ANTHER FROM THE FRONT...................TO SCALE X 10
I. POLLINIA FROM THE FRONT.................TO SCALE X 20
K. POLLINIUM FROM THE SIDE..................TO SCALE X 20
L. LONGITUDINAL SECTION OF COLUMN AND LABELLUM....................TO SCALE X 5

The Genera Diplocaulobium and Ephemerantha In Australia. continued

Ephemerantha convexa (Bl.) P. F. Hunt and Summerhayes, Taxon 10, 4: 103 (2-6-1961).

Syn. :- Desmotrichum convexum Bl., Bijor. 330(1825).
Dendrobium convexum (Bl.) Lindl., Gen. et Spec. Orch. 76 (1840); J. J. Sm. Fl. Buit. 6: 321 and Orch. von Java Fig. Atlas 3, f242 (1910); Holttum, Fl. Malaya 1: 267(1953) and 270 (1957).
Flickingeria convexa (Bl.) A. D. Hawkes, Orchid Weekly 2: 454 (1961) (Invalidly Published).

Distribution:- So far only recorded from the Daintree River - Cape Tribulation area of south-east Cape York Peninsular. It is also recorded from Malaysia, but, as far as is known, has not yet been recorded from New Guinea.

Diplocaulobium glabrum (J. J. Sm) Krzl. in Engl. Pflanz. 4, 50, ii, B, 21: 339(1910).

Syn. :- Dendrobium glabrum J. J. Sm., Bull. Dep. Ind. Neerl. 5:4 (1907); and Novo Guinea 8; Liv. 1, Pl. 20, Fig. 64 (1909).
Cadetia ruppii St. Cloud, Nth. Qld. Nat. 23, No. 110: 2 (Jan. 1955).

Distribution:- The eastern side of Cape York Peninsular, sparingly from the Mulgrave River northwards, extending to New Guinea and Indonesia.

Diplocaulobium masonii (Rupp) Dockr.

Syn. :- Dendrobium masonii Rupp, Aust. Orch. Rev. 18, No. 1: 18 (March 1953).

Distribution:- So far only recorded from near Cape Tribulation in the south-east of Cape York Peninsular.

In D. glabrum the pseudobulbs are flattened-ovoid but not angular and the ridges of the disc of the labellum are 2 in number and straight. In D. masonii the pseudobulbs are angular, the angles often produced into wings and the ridges of the disc of the labellum are 3 in number and wavy.

A. W. Dockrill, 11 Balzer Close, Edge Hill. Cairns. Nth. QLD.

OBERONIA TITANIA Lindl.

Walter T. Upton.

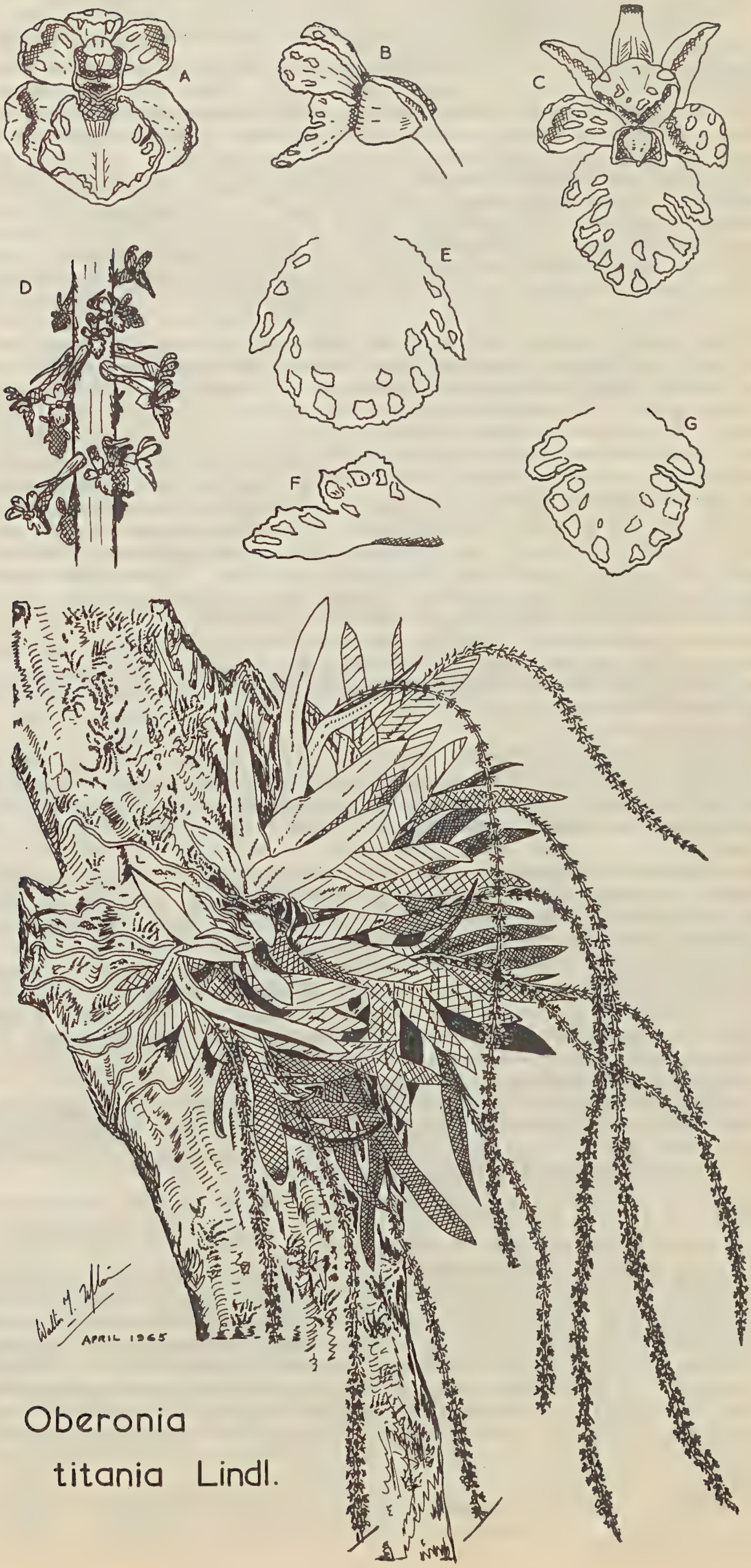
A Fairy Story

Once upon a time, in 1859 to be exact, John Lindley Ph. D., F. R. S., Professor of Botany in University College London, described me in his work Folia Orchidacea, and gave me the specific name titania. What a fitting name that was for me, for am I not fairy-like, do not my tiny flowers dance on my racemes as small supernatural beings in human form. Yes, named after Titania, the Queen of the Fairies. A royal name and even more so as my generic name is from Oberon the King of the Fairies. Furthermore my lineage could be said to be of distinguished ancestry, for as every plant is treated as belonging to various categories of consecutive rank of which my specific name (titania) is but the basic one, followed by my generic name (Oberonia) then continuing, I belong to the Liparidinae tribe of the group Acranthae within the section Acrotonae of the sub-family Monandrae of the Royal Family of plants Orchidaceae. I am sure that even Titania herself did not have that background, and no doubt she evolved over a much shorter period.
Whilst the foregoing may sound like an imaginary land of dreams, it is, nevertheless true, and surely it makes one realise that a considerable amount of thought must have been given to the choice of names for plants and also the realisation that some of our early botanists must have been romantics too.

Whenever I see this beautiful little native orchid of ours I get carried away with its delicate and dainty appearance, and find myself in the domain of the fairies, however, back to Earth.

The genus Oberonia consists of about 150 species of principally small, fleshy leaved epiphytes, with very numerous but minute flowers. Widely distributed throughout tropical Asia to Australia and the Pacific Islands and from east Africa.

Continued on page 136.



Oberonia
titania Lindl.

Oberonia Titania Lindl. continued

Only two are recorded from Australia, namely O. muelleriana and O. titania. O. muelleriana has a wide distribution outside of Australia but O. titania is endemic. (A third Australian species, Oberonia attenuata has recently been described) Editor.

Oberonia titania is a very small almost stemless plant whose leaves are produced in two opposite rows (distichous). Plant averages about 1¾ - 2 inches high and has about 6 leaves, each approximately 1½ inches long and generally just less than ¼ inch wide. The leaves are flat and give the plant the appearance of having been pressed. Although generally green the leaves are quite variable in colour, depending on the amount of shade under which they are grown. I would consider that the average leaf has a bluish/grey tinge, and if anything slightly mauve towards the tips. If grown in too much sun the leaves become yellowish. The flowers are minute and very numerous, and are compactly arranged on a usually pendulous, terminal raceme. The slender raceme, which sways to and fro in the breeze, consists of as many as 300 flowers and is up to 6 inches long, although 5 inches long seems to be about the average. The individual flowers are approximately 1/24th of an inch across and are on pedicels about 1/16th of an inch long. The floral bracts are nearly as long as the pedicels and are almost colourless. The flowers appear a pale brick red in colour, a close examination of the flowers under a microscope reveals that all the perianth segments are translucent with a reddish hue, caused by the small spots or marks of reddish colour, the lateral sepals being the palest of the segments and the labellum the darkest. The segments have numerous clear roundish/oblong/oval shapes on them, although very few and sometimes none appeared on the lateral sepals. These clear areas are often raised above the surface. Under high magnification the whole flower appears as if made up of millions of small pieces of red and clear coloured glass. The lateral sepals are reflexed back against the ovary in the mature flowers, but when the flowers first open and for a day or two the lateral sepals are positioned forward, making the flower quite cup-shaped, as will be seen in drawing A. Drawings B and C are of mature flowers.

The three lobed labellum is most variable in shape and size, the lateral lobes are quite narrow in some flowers and quite broad in others, are pointed in some flowers and rounded in others, the mid-lobe also differs greatly in shape. Drawings E, F and G show the variability of the labellum.

The column is quite short and when one examines the position of the anther, pollinia and stigmatic plate and notices the size and position of the rostellum one realises that self pollination of these minute flowers would be rather difficult, one is therefore led to wonder what the fertilising agent must be; it must be a very minute insect. If anyone reading this article knows the answer please let me know.

The labellum is always at the top of the flower, or perhaps it would be better to say the labellum points towards the apex of the raceme of flowers as the labellum appears in the normal position when the raceme is pendulous, as shown in drawing D.

O. titania is a common plant extending from North Queensland down the coast to the vicinity of the Macleay River in N.S.W. It does not seem to be particular in regard to its host tree, being found on a great variety of trees, and its habitat is equally variable.

The flowering period of O. titania is from March to May, the racemes of flowers lasting for quite a few weeks from the time of the first bloom opening to the last bloom dying.

O. titania is an orchid that should be in everyone's collection, particularly as it responds well to culture. The plant shown in the drawing I have had in my collection for a number of years and is still on a limb of its original host tree. I do, however, water it frequently and it seems to be happier with a weak mixture of Aquasol occasionally in the growing period. I have also tied O. titania on to ti-tree limbs and blocks of fibre with success. Mr. Harold Hirsch of Dee Why has considerable success growing his plants in pots, in sieved fir bark ("Silva bark").

Continued on page 137.

Oberonia Titania Lindl. continued

One 4" pot containing numerous plants of this species, at the present time is a mass of blooms, having over 30 racemes of flowers, proudly displaying themselves and making the whole a delightful adventure in fairyland and a central point of conversation to all who see it. Incidentally Harold Hirsch waters his plants regularly every day and sometimes twice a day.
I prefer to grow it in a shady position; the best of my plants is growing in a cool glasshouse below bench level.

O. titania can be easily distinguished from O. muelleriana, by the size of the plants and the colour of the flowers. O. muelleriana is a larger plant and has broader leaves, the flowers are a creamy-yellow to greenish colour and it flowers in Spring. O. titania flowers in Autumn. A closer inspection of the flowers of O. muelleriana show that they are considerably different from O. titania, particularly as the labellum is not three lobed and also it is dentate.

Synonyny of O. titania. O. palmicola F. Muell., Fragm., II (1860), 24; Benth., Fl. Austr., VI (1873), 274; Fitzg., Austr. Orch., II, 3 (1888); Malaxis palmicola (F. Muell.) F. Muell., Fragm., VII (1869), 30.

KEY TO DRAWINGS.
A. Flower from front, approx. 24 times natural size.
B. Flower from side, approx. 18 times natural size.
C. Flower from above, front, approx. 24 times natural size.
D. Section of raceme, approx. 9 times natural size.
E. F and G. Labella, variously enlarged.
Plant natural size.

Walter T. Upton, 71 Wesley St., Elanora Heights, N.S.W.

EARLY IMPRESSIONS OF PTEROSTYLIS FISCHII IN CULTIVATION.

B.Whitehead.

Early in 1963 I was given a very few plants of this species to add to my collection of terrestrials under cultivation. Some of its characteristics have prompted me to pass on my impressions. The first is the ease with which the plant reproduces vegetatively. Some plants increased at a ratio of 5 to 1, others less, but all increased. Tubers were observed to grow out the bottom of the pot very early in its career.
A striking feature was the unusual colour of the rosette. The colour, a dull green was quite distinctive and I have not seen this colour on any other species of Pterostylis as yet. The colour of the rosette makes it very easy to anticipate dormancy approaching, as the usual high shine on the rosette which usually precedes withering of the rosette is accentuated in this species, probably because of the colour, which acts as a background.
Finally, Pterostylis fischii can always be relied upon, in my collection, to be one of the first Pterostylis species to appear in the new season, the shoots appearing with the first shoots of Pterostylis parviflora and Pt. revoluta. As yet the plant hasn't flowered, but I am hoping that a particularly large shoot just appearing this season will develop into a flowering plant.

B. Whitehead, 14 Thompson Street, Forbes. N.S.W.

DENDROBIUM KESTEVENII Rupp.

The photographs shown on page 144 have been kindly loaned to The Orchadian by Mr. H.J.R. Overall of Newport Beach, N.S.W. They were taken by him in 1935 and portray the original plant of Dendrobium kestevenii. This plant was collected by a Mr. Slater on Alum Mountain, Bulahdelah, in 1930 and given to Dr. Kesteven. It is from this plant that the holotype was chosen and cited by Rev. H.M.R. Rupp, in his original description of this species in the Proceedings of the Linnean Society of N.S.W. Vol. LVI (1931), 137. Mr. Overall tells me that a few weeks after these photographs were taken, the plant was stolen from Dr. Kesteven's garden where it was growing very freely, thus part of our native orchid history was lost. The photographs showing a close up of a raceme of flowers is approximately ½ natural size.

W. T. Upton.

THE GROWTH HABITS OF N.S.W. EPIPHYTIC ORCHIDS.

M.G. White

In dealing with New South Wales native orchids (apart from tuberous terrestrials) I propose to arbitrarily divide them into six groups according to their growing habits and will discuss them under these groups. For the sake of simplicity all orchid names shall be as given by Rupp in "Orchids of N.S.W." irrespective of any later corrections in nomenclature. (In order to maintain the accuracy of botanical nomenclature within The Orchadian, I have found it necessary to make certain changes to the author's manuscript in this respect. Editor). The system of classification is given briefly below and then the groups will be dealt with in detail.

1. Pseudobulbous terrestrials	e.g. Calanthe triplicata
2. Lithophytes	e.g. Sarcochilus ceciliae
3. Epiphytic-lithophytes	e.g. Dendrobium linguiforme
4. Normal epiphytes	e.g. Sarcochilus falcatus
5. Aerophytic-epiphytes	e.g. Thrixspermum tridentatum
6. Restricted host epiphytes	e.g. Bulbophyllum weinthalii

PSEUDOBULBOUS TERRESTRIALS.

There are three N.S.W. orchids in this section, Calanthe triplicata, Phaius tankervilliae and Geodorum pictum. I am familiar only with Calanthe triplicata, the others being rare in N.S.W. C. triplicata grows on the ground in soil with a high humus content or commonly on fallen staghorns (Platycerium grande) etc.; generally under high shade conditions in semi-rainforest on flats along creeks and gullies at low elevations on the N.S.W. north coast. It is a very frost sensitive species, burning badly in any frost and is also remarkable in the extreme sensitivity of its flowers to handling.

Phaius tankervilliae used to occur under swampy conditions on the north coast, but is now to all intents and purposes extinct. I do not know anything of the habit of Geodorum pictum.

LITHOPHYTES.

The members of this group are always associated with rock, though plants may be growing in soil pockets or in soil accumulating about their roots.

Dendrobium kingianum, the best known orchid in this section can be almost a terrestrial at times and is often associated with Thelymitra aristata, a true terrestrial. In the Kyogle area there used to be magnificent displays of Dendrobium kingianum, Sarcochilus hartmannii and Thelymitra aristata growing in soil pockets on cliff ledges, but unfortunately this area has been stripped bare by orchid vandals. D. kingianum is one of the most widespread and variable lithophytes in N.S.W. It occurs in a wide range of forms and from wet heavily shaded gullies to bare sun bleached rock and from sea level to 4,000 feet elevation. Another lithophyte, Liparis reflexa is almost always found in association with Dendrobium kingianum and its habitat is best described as that of D. kingianum, except that it is limited to the moist areas and does not occur with D. kingianum in many exposed sites, or at higher elevations. Sarcochilus hartmannii is much more restricted in range than Dendrobium kingianum, preferring cliff faces where it can enjoy plenty of moisture and sunshine. The related species, Sarcochilus fitzgeraldii is restricted to heavily shaded areas near running water and often hangs in long festoons from rocks. Both these orchids are now all but extinct in N.S.W. Sarcochilus ceciliae, a lovely orchid, is a lover of sun-baked cliffs, often, though not always near streams or waterfalls. The plant itself is often fully exposed to the full sun with rock surface temperature often rising to 120° F in summer. However, the roots work their way into rock crevices and generally enjoy a cool moist microclimate even in the hottest weather. There seems to be an altitude limit to this orchid, as it rarely occurs below about 800' elevation and when cultivated on the coast generally slowly expires. The upper elevation limit is about 3,000'.

Dendrobium striolatum. All I know of this species is that it is Australia's most southern growing Dendrobium and occurs on rocks from the mid-coast of N.S.W. as far south as Tasmania.

Finally, though not least, is Dendrobium delicatum. This, a supposed natural hybrid between D. kingianum and D. speciosum is a true litho-

Continued on page 139.

The Growth Habits of N.S.W. Epiphytic Orchids. continued.

phyte and has identical growth habits to D. kingianum though not so widespread in habitat.

LITHOPHYTIC EPIPHYTES.

The orchids of this group are often characterised by the wide range of growing conditions they are found in. This group is very hard to subdivide in terms of host species or rocks as their occurrence appears to be controlled by locality e.g. latitude and the range of tolerable climate. Also several species mainly the Oberonias, Dendrobium monophyllum and D. schneiderae have their main range of occurrence in Queensland, of which I am ignorant.

It is this group that takes almost all the records for endurance to cold, drought and sunlight. For sheer resitance to dryness and scorching sunlight, Dendrobium speciosum is hard to rival, being as much at home on bare rocks exposed to full sunlight as in shady moist gullies. One specimen I saw was growing on bare granite rock about four feet above a creek. The rock was polished smooth by repeated floods and the plant itself showed scars of being battered by floods. It was obvious that it is only a matter of time before flood debris will dislodge it from its perch. It completely puzzled me how this plant originated. I find it incredible that it could have germinated from seed in this location, yet the rock appeared too steep and smooth for a piece to have lodged there in some past flood. Apart from this, though mainly a coastal species it does occur up to 100 miles inland and up to 3,000' elevation. Also it shows a surprising range of light tolerance, from full sunlight to quite heavy shade.

Other orchids in this section which impress me with their range, in this case in elevation, are Dendrobium pugioniforme, D. teretifolium, Bulbophyllum elisae and B. exiguum. Dendrobium pugioniforme and Bulbophyllum elisae share the altitude record for epiphytic orchids in N.S.W. occurring together in rock crevices on the "Snowy Range" at an elevation of 4,300', on a barren rocky plateau between Armidale and Point Lookout; Dendrobium teretifolium var. fairfaxii and Bulbophyllum exiguum under similar conditions in the Gibraltar Range area east of Glen Innes, at a somewhat lower elevation of about 3,500'. These orchids also occur as epiphytes at about the same elevation in rainforest, but the main occurrence is as lithophytes, probably because of the lack of rainforest. Climatic conditions can be very bleak at these elevations and I have observed frost lasting all day in shaded spots with ice building up to six inches thick under a leaking water tank on the "Snowy Range". Temperatures recorded in winter are as low as 15°F. I do not for one minute believe that epiphytic orchids are capable of surviving these conditions of low temperature, but that by vigorous selection of environment these orchids grow only in much milder microclimates, such as rock crevices on a northern aspect where heat stored by the rocks during the day offsets the biting cold of night. Dendrobium teretifolium at first glance has a wide range of occurrence but when examined closely it is found to consist of a number of distinct varieties, each with its own habitat, but the rainforest variety D. teretifolium var. fairfaxii has a wide range of occurrence and it is this variety that commonly occurs on rocks. The type form extends along the coastal areas to southern N.S.W.

Dendrobium gracilicaule also has a wide range from coast to tablelands up to just over 3,000' elevation and extends as far south as Sydney. In contrast to D. teretifolium I have observed it on rocks at the low end of the elevation range and not the higher.

Dendrobium gracillimum, a supposed natural hybrid between D. speciosum and D. gracilicaule occurs more or less where both the parent species occur, but because of its variety, it is hard to be definite about its range.

Dendrobium beckleri and D. mortii are very similar in appearance and habitat, except that D. mortii is restricted to the far north coast whilst D. beckleri occurs south, almost to Newcastle. Both prefer the lower elevations, often on creek sides or at the base of cliffs, like plenty of sunlight and favour hosts that are above the general canopy level of the forest and exposed to sunlight. Favoured hosts are more open branched Ficus and other smooth barked trees. Both also occur on rock, commonly on the rough boulder covered hill-side, timbered with Ficus spp.

Continued on page 140.

The Growth Habits of N.S.W. Epiphytic Orchids. continued.

and Laportea spp. (Giant Stinging Tree).
Dendrobium linguiforme favours the river oak (Casuarina cunninghamiana) and swamp oak (Casuarina glauca) at lower elevations but is not adverse to other hosts and is also commonly found on rocks and at the upper end of its elevation range from 2,000' up to about 3,000' and is almost restricted to rock sites. Though it likes plenty of sunlight and is often in extremely exposed sites I have seen it growing well under conditions of moderately heavy shade.
The remaining species Dendrobium schneiderae, D. monophyllum, Oberonia titania, O. muelleriana, Bulbophyllum bracteatum and B. crassulifolium are all limited to northern coastal lowlands under 1,000' elevations, with the exception of Bulbophyllum crassulifolium and Oberonia titania, which occur south to Taree. These species have their main occurrence in Queensland and I do not feel able to comment on them. The two latter species favour cool moist brush gullies with moderate to heavy shade conditions, growing on trees or occasionally on rocks.

NORMAL EPIPHYTES.

This is by far the largest of the groups and I am rather uncertain about tackling it because of this and also because an important feature is the actual species of host tree. I have been generally negligent in observing these and now am no longer in a position to check same. This comment about host trees also applies to the previous group, but is not so important. In dealing with this group I will take the short cut of grouping them into their genera and treating the genera individually. First the Cymbidiums. There are three species in N.S.W. and they show an interesting transition. C. madidum occurs near the coast, from about Macksville northwards, usually on large paperbark trees (Melaleuca spp.) in coastal swamps, brush box (Tristania conferta) or old stumps. Cymbidium suave occurs more inland, but is still a coastal species from Taree northwards. It commonly grows on Eucalyptus spp. or Casuarina spp. in hardwood forests, the roots growing in the decayed centres of the trees. Cymbidium canaliculatum is a species of the tablelands and western slopes, being the most inland epiphyte in N.S.W., occurring as far west as Moree. I have seen it growing on dead stumps, White Box (Eucalyptus albens) and Rough Barked Apple (Angophora floribunda). All three species have a common habit, extremely long wandering root systems, that penetrate down inside the hollow branches or stumps drawing food and moisture from the often compacted "mud-guts" in the tree. There is rarely an external root system on the surface of the tree.
Liparis coelogynoides is the only epiphytic member of this genus in N.S.W. It occurs at intermediate elevations of 1,000' to 2,000' from Taree, north in scattered locations. I have seen very nice specimens growing on moss pads on Hoop Pine (Araucaria cunninghamii) and it also favours growing on small stunted trees on rocky sites, often near the butt of the tree. Probably it also occurs sometimes on mossy rocks.
Two Dendrobiums can be classed as normal epiphytes. They are Dendrobium tetragonum and D. tenuissiumum. D. tetragonum is widely spread at lower elevations along the coast of N.S.W. along creeks and in mixed Eucalyptus forests, generally with moderate to heavy shade. Host trees are usually members of the Myrtaceae family. Dendrobium tenuissimum has an almost identical habitat although at higher elevations of about 1,000' to 3,000'. They differ in that Dendrobium tenuissimum occurs only north of Taree and favours Eucalyptus forest rather than creek side locations.
The Bulbophyllums in this group are a queer bunch. B. globuliforme is extremely rare and details of its occurrence are almost unknown. (See The Orchadian number 10, page 126, Editor.) Bulbophyllum minutissimum is distributed from the south coast of N.S.W. to Queensland and is found mainly on Ficus spp. in poor open rainforest near the coast. Bulbophyllum bracteatum is really a Queenslander that barely slips across the border into the Kyogle area and occurs in the tops of large trees. The last one, Bulbophyllum aurantiacum ranges from Buladelah to the north. It is very patchy in its range and is always on trees, mostly in association with the closely related B. crassulifolium. I am not aware of any particular host tree preferences.

Continued on page 141.

The Growth Habits of N.S.W. Epiphytic Orchids. continued.

Both Sarcanthus beckleri and S. purpuratus occur on the central and north coast and tablelands. These two favour rainforest trees, usually Coachwood (Ceratopetalum apetalum) and Callicoma spp., along streams in cool shady conditions, though they may be away from streams where other conditions are favourable. They seem to favour the fine twigs over water or in the shelter of the crown, rather than on the main trunk.

Rhinerrhiza divitiflora is one of Australia's strangest orchids with its weird roots and magnificent blooms. It is found north of Bulahdelah, mostly on transition from coast to tablelands. It is found as weak plants on rough barked scrub trees, in many places along the north coast, but it reaches its full glory on poor, dry rainforest on the steep, often precipitous fall from the tablelands to the coast. Mostly on trees of the Myrtaceae family of the type with somewhat fibrous bark, through which its roots wander for many yards. Under these conditions I have measured plants with a leaf span of just over twelve inches and carrying four to five racemes, each spray from ten to fifteen inches long and in a single plant carrying several hundred golden-brown, two inch blooms.

Sarcochilus olivaceus has very similar habitat requirements to Sarcanthus beckleri and is often competing with it on some trees. It is found along gullies and streams with its characteristic wandering root system in cool, very shady conditions and also is often found in cool rainforest.

Sarcochilus spathulatus has much the same range of occurrence and seems to differ from S. olivaceus in preferring slightly less shade, and coming out of the rainforest into the brush under-story of the moist hardwood forests. Sarcochilus australis seems to be very similar to S. spathulatus, except that it requires cooler conditions and occupies similar sites as far south as Tasmania.

S. hillii is very closely related to S. ceciliae (with which it hybridises readily) and likes bright broken sunlight, but differs in that S. ceciliae is a lithophyte, while S. hillii is an epiphyte. Also it likes cool conditions and seems to favour the hills and tablelands.

Sarcochilus falcatus is the widest ranging of the group, and is found almost anywhere on the coast and eastern tablelands of N.S.W. where rainforest can occur. It is a species of the rainforest, though it often spreads outside it. It seems to favour drier conditions than many of the previous species and likes a moderate amount of sunlight. Unlike many of the Sarcochilus it favours the main trunk and larger limbs to grow on rather than the fine twigs.

AERIAL EPIPHYTES.

This group has been specially created for Thrixspermum tridentatum. The trees seem to exist merely to hold the plant up in the air, and the roots are mostly a tangled mass hanging in the air. This species is found all along the coast of N.S.W., mostly along well shaded creeks and gullies in the rainforest strips and also hanging from twigs of under-story brush and scrub species in moist Eucalyptus forest. Because of its habit, host trees don't seem important except to supply support and position the orchid in the forest where conditions best suit its growth.

SPECIFIC HOST EPIPHYTES.

Dendrobium falcorostrum almost always occurs on Negrohead Beech (Nothofagus moorei), though found in rare cases on other trees or on rocks. Its range in N.S.W. is that of its host, except where the Negrohead Beech occurs above the 4,300' level at New England National Park. Just how widespread it would be if its host was not comparatively rare is hard to say, but I would guess it would be much more extensive towards the coast down to about 1,000' elevation.

Dendrobium cucumerinum is, as far as I am aware, specific to the river oak (Casuarina cunninghamiana)and is always associated with rivers and creeks at higher elevations about 1,000' in N.S.W. It seems to favour the underside of the main branches and the southern side of the main trunk to grow on. At lower elevations it is replaced by Dendrobium linguiforme on the same species of tree, but despite its obvious close relationship to D. linguiforme is unlike it. The species does not occur on rocks or on other trees.

Continued on page 142.

The Growth Habits of N. S. W. Epiphytic Orchids. continued.

Dendrobium aemulum is a specific host orchid with a difference. It has two hosts and they are as different as it is possible to imagine, and the appearance of the orchid also changes, depending on the host, so that seeing a plant usually makes it easy to state from which host species it occurred.

Whether this difference is varietal or environmental is a moot point. One host is the Brush Box (Tristania conferta) which occurs in cool moist shady gullies and on the edges of rainforest. The Brush Box is a smooth barked tree (common as a street tree in Sydney) up to 150' high, with a dense crown and a short section of rough, soft semi-fibrous bark at the base, to about 20' to 30', on which D. aemulum is usually found. The other host is the Grey Ironbark (Eucalyptus paniculata). This is a tree of the dry ridge type Eucalyptus forest with a very hard ridged corky bark, often heavily impregnated with kino (resin). The "Ironbark Orchid", still the same orchid, is quite different in appearance, the pseudobulbs being shorter, more swollen, and very reddish, while the leaves are shorter, rounder and much thicker due to the increase in exposure to sunlight and drier conditions. This reflects the very different habit of its alternate host. The Ironbark is a very open crowned type of tree, providing little shade and Dendrobium aemulum occurs on the trunk and main limbs. I have not observed whether it favours any particular aspect on its host.

Bulbophyllum weinthalii is specific to the Hoop Pine (Araucaria cunninghamii). It occurs on the side branches, well up in the crown, usually at about two thirds of the total tree height. As the Hoop Pine generally sticks out well above the surrounding trees, the orchids are generally well exposed to air currents and sunlight. As far as I am aware Bulbophyllum weinthalii does not occur on Hoop Pine on the coastal flats, but only on hills and tablelands (e. g. Dorrigo and Kyogle) from 1,000' elevation up to about 3,500'.

Conclusion.

In writing this article I am conscious of two things, the need for more knowledge of the ecology of our native orchids, and the dissemination of that knowledge, and also, particularly as this article progressed, of the many gaps in my own knowledge. I have endeavoured to make this article as accurate as possible within the limits of my knowledge, but it cannot be regarded as either exhaustive or authoritative and it is only if other orchid enthusiasts, many of whom I know to have a better knowledge of orchids than I, write to The Orchadian. Thus we can correct errors I have made and add more information about these orchids where it is considered that I have dealt with them inadequately. In this way something worthwhile can be built up in our knowledge of the growth habits of our orchids.

M. G. White, Maydena. Tasmania.

NATIVE ORCHIDS FROM NORTH WESTERN TASMANIA. B. J. Dudman.

In Australia we have approximately 600 species; and of this total, Tasmania has about 130. With the exception of two; Dendrobium striolatum found only on the east coast, and Sarcochilus australis found in rain forests near the coasts, all our orchids are terrestrials.

Along the north west coast of Tasmania there are orchids in bloom throughout the year with a majority blooming in the spring months. Rocky Cape area is one of the best areas, and has about 40 varieties to be found growing amongst the heath in sandy and rocky soil. The Acianthus, Corybas and Pterostylis prefer the sheltered eastern side, and grow beneath the trees in rich leaf mould. The Thelymitra, Caladenia, Glossodia, Calochilus prefer the more exposed flat areas, and are well camouflaged amongst the heath scrub and are all very common. At the top of the hills, Lyperanthus nigricans form a near carpet of leaves, and the season following a bush fire are a mass of blooms making a spectacular show.

Continued on page 143.

Native Orchids from North Western Tasmania. continued.

Caladenia latifolia can be found in this area very close to the sea but it is not common. Moving a couple of miles in an easterly direction along the coast at Sisters Creek several patches of the quaint Caleana major grow, also Gastrodia sesamoides makes a show with its clumps carrying numerous spikes of glistening brown and white blooms. The attractive spikes of Dipodium punctatum can also be found along this area, as well as being scattered all along the coast.

Around the Burnie area many varieties grow but each year their numbers are being reduced by building expansion and land cultivation. For instance an area of robust Thelymitra grandiflora some up to 4 ft. in height and carrying up to 65 1¼"blooms, in colours ranging from shades of blue, mauve, some pinks and the occasional white. These have almost disappeared and this location is now a golf course. On Round Hill, Pterostylis nana and Thelymitra ixiodes are very common. A large area of Cryptostylis subulata grow happily under the broken shade of Eucalyptus trees, in clay soil with very little other low vegetation offering shelter for them, on the slopes of the hill. In the Fern Glade reserve on the banks of the Emu River an interesting item is an increasing colony of Pterostylis pedunculata growing in the manferns near their top. Also in this reserve can be found many Pterostylis nutans, Pterostylis longifolia and Caladenia carnea.

Along the coast 11 miles to Penguin and inland to Mt. Montgomery, there is a varied selection growing on the slopes. Calochilus campestris, C. robertsonii and C. paludosus are scattered in the sandy soil at the base of the mountain. Caladenia carnea, C. cucullata and C. angustata add colour all up the sides, and on top Chiloglottis gunnii is growing in large patches in sheltered areas.

An interesting find was Spiranthes sinensis growing in sand; under Bracken fern near the sea, on the track from Hells Gate to the Cape Sorell Lighthouse on Tasmania's rugged west coast. This has attractive small blooms of waxy pink petals with a prominent white labellum.

Finding orchids surviving in the Central Highlands out on the open plains and some in damp shaded gullies shows their great range in our state.

The following varieties are common all along our coast. Pterostylis nutans, P. longifolia, Acianthus exsertus, Caladenia carnea, Glossodia major, Microtis parviflora, Thelymitra pauciflora, Thelymitra grandiflora.

B. J. Dudman, 31 Morse Street, Montello. Burnie.
Tasmania.

PROPOSED AMENDMENTS TO THE CONSTITUTION.

Attached to this issue of The Orchadian is a copy of Proposed Amendments to The Australasian Native Orchid Society Constitution. Following the ratification of the Constitution in 1964, several members who felt that amendments were necessary, gave notice to The Council of their proposals. However, as some of the proposals were near duplications, The Council felt that a meeting between the proposers and Council could result in a reduction in the number of amendments submitted to members.

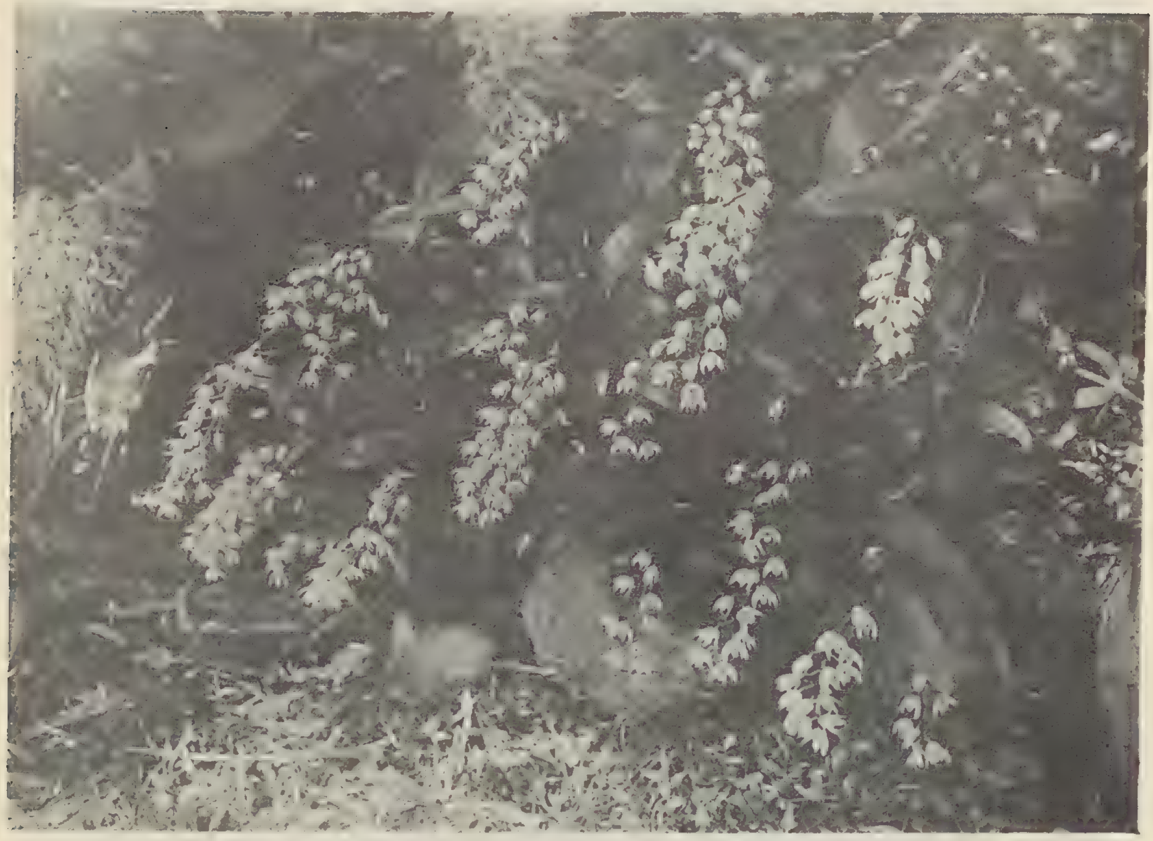
The attached amendments are the result of this meeting and carry the complete approval of the proposers and Council.

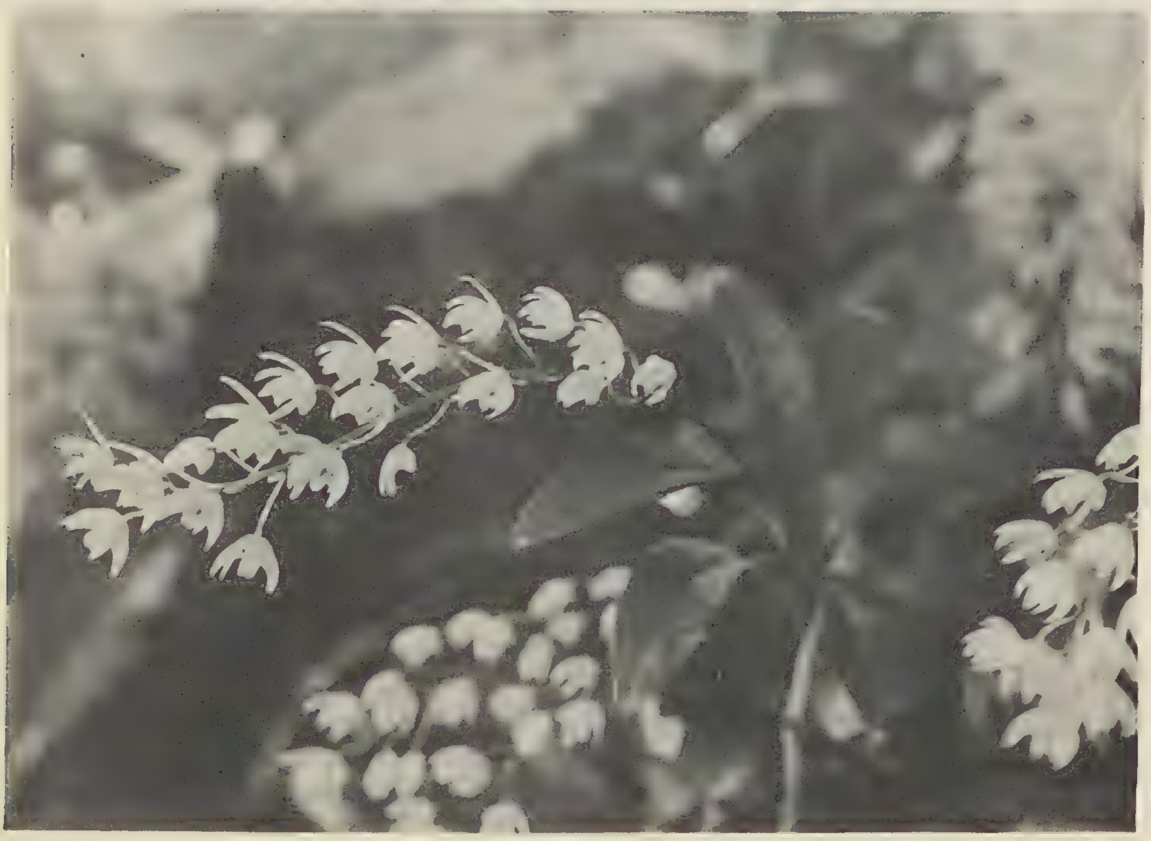
NEW MEMBERS.

Mr. H.W. Carothers, Associate Director, McWhirters Ltd.,
The Valley. Brisbane. QLD.

Mr. J.A. Lord, Green Thumb Nursery, Lake Cathie, via Wauchope.
N.S.W.

Dendrobium kestevenii Rupp





THE ORCHADIAN

June, 1965.
Page 145.
Vol. 1.
No. 12.

Published by The Australasian Native Orchid Society

Patron: W.T. Upton.
Vice Presidents: Eric Gordon.
J.H. Scott.
Hon. Secretary: R.G. Napier.
Asst. Hon. Sec.: L. Parker.
President: W.H. Murdoch.
Records Sec.: R.J. Curtis.
Treasurer: E. Marygold.
Editor: M.J.G. Corrigan.
Asst. Editor: S.C. Clemesha.

Price : 3/-.

NEW POSTAL ADDRESS.

Members please note that we now have a postal box for all correspondence to your Council. Post to: P.O. Box 106C. Clarence St., Sydney. N.S.W.

MEMBERS PLEASE NOTE

It is regretted that the nomination forms for the election for Council did not show the actual polling date. Therefore, it has been necessary under the constitution to extend the date for closure of nominations to the 25th August, 1965, the actual polling date will be the 23rd September, 1965, and the date of the general meeting will be the 25th September, 1965.

GENERAL MEETING - 25th September 1965

Meeting to commence at 2.30 p.m. in room 204, Y.W.C.A. Liverpool Street, Sydney. All members should endeavour to attend this meeting.

PRESIDENT'S REPORT

Ladies and Gentlemen,

I have sincere pleasure in presenting the second annual report of The Australasian Native Orchid Society.

The widespread approval of our efforts, presented to our members per medium of The Orchadian, gives us unbounded satisfaction. It is now distributed throughout the world.

The co-operation of all members of our Executive has been unstinted, despite the fact that all have business, or professional obligations that impose considerable demands on their time. Our Secretary, Bob Napier and Treasurer, Eric Marygold have done a most worthy job, often under considerable difficulties.

Our Authors and Artists have made the task of Murray Corrigan much easier; with their considerable assistance he has, I am sure you will agree, produced twelve excellent issues of The Orchadian.

The Orchadian is now available in libraries and herbariums throughout the world. To more readily conform with the requirements of these institutions and to enable easier handling by members, the thirteenth issue will be the first in quarto size.

Mr. Frank Wakeley A.A.S.A. A.C.I.S. has again offered to act as Hon. Auditor, despite the fact that he will be shortly leaving for England where he will reside for several years.

Returning Officers, in the persons of Messrs. J.A.P. Blackmore and B. Cardwell have been elected. Nomination forms for the Election of Council for the forthcoming year are in your hands; Ballot papers are enclosed herewith. Whilst on the subject, let me add, that at the last election less than 70% of financial members voted. Are you satisfied with this ? Exercise your prerogative and vote.

A monograph on the Tribe Sarcanthinae in Australia has been under the care of a Sub-Committee for some time and after final review of the author, we should be able to announce the date of anticipated publication.

Obsessed with the need for economy, we did not send out notices of renewal of dues, trusting to a mention in The Orchadian. The result has been that we are still receiving overlooked dues. In future notices will be forwarded to members.

During the year we have produced 5 issues of The Orchadian; a total of 75 pages. 5 new species have been described and a new combination for a further 3 species. Drawings of 93 species have also been included, 62 of which appear in Wal Upton's drawings in this issue.

continued on page 162.

STH. YARRA, S.E.1, VIC.
10 OCT 1966

Is It Or Is It Not ?

Eric Gordon.

The reference by W. T. Upton in The Orchadian on page 137 to the plant from which the holotype was taken and cited by H. M. R. Rupp in his original description of Dendrobium kestevenii prompts me to express my opinion that D. kestevenii Rupp is conspecific with Dendrobium delicatum (F. M. Bail.) F. M. Bail., and that as Bailey's species was described many years before Rupp's, D. kestevenii cannot be regarded as a valid species and should be reduced to a synonym of D. delicatum. During 1884 Frederick Manion Bailey, at that time Colonial Botanist of Queensland described a plant collected by Benjamin Crow, from Spring Bluff in the Toowoomba area, as Dendrobium speciosum var. delicatum in a paper which he read before the Royal Society of Queensland (Proc. R.S. of Qld. 1 (1884). It is hard to understand why he thought that this plant was a variant of Dendrobium speciosum at this time and he obviously thought better of it later, for in the Queensland Flora Vol. 5. 1902, page 1527, he described the plant as Dendrobium delicatum. Therefore, before proceeding further with this discussion I must point out that the correct citation for the species is Dendrobium delicatum (F. M. Bail.) F. M. Bail. (reference to my earlier articles on nomenclature should explain this).

Now to the "nigger in the woodpile", Rupp in 1931 (Proceedings of the Linnean Society of New South Wales 56. (1931) 137, described a plant, which in my opinion could only have been a form of Dendrobium delicatum, as Dendrobium kestevenii. It appears that Rupp was completely unaware of Bailey's Dendrobium delicatum (surprising in a man of Rupp's capability) and when it was pointed out to him, became loth to abandon this species. He appears to have vaccilated between defence of his determination and a feeling that he was in error. I will endeavour to show the whole basis for my claim that Dendrobium kestevenii is con-specific with Dendrobium delicatum and that as Bailey's description ante dated Rupp's by many years Dendrobium kestevenii cannot be regarded as a valid species.

Rupp described Dendrobium kestevenii in the Proceedings of the Linnean Society of New South Wales 56. (1931) 137, from a plant sent to him by Dr. Leighton Kesteven of Bulladelah, as a new species.

There was promptly an outcry from many students of the Australian orchid family and it was claimed that Dendrobium kestevenii was identical with Bailey's Dendrobium delicatum. Again, in the Proceedings of the Linnean Society of New South Wales Rupp discussed the question without being able to reach a definite conclusion owing to the "uncertain identity of several forms received under the name of Dendrobium delicatum". What Rupp meant by this ambiguous statement is anybody's guess and to further complicate the position, in March 1935 he submitted a paper to the Queensland Naturalist in which he said "Undoubtedly the two plants are very closely allied, but I do not think Dendrobium kestevenii can be regarded as a form of Dendrobium delicatum".

The type locality of Dendrobium delicatum was, according to Bailey (Q.Fl. V. p. 1527) "Main Range near Toowoomba about a 100 miles west of Brisbane." F.A. Weinthal collected some plants in the same area, of one of which Rupp said "I have no doubt that it represents Bailey's type." Mrs. Hilda Curtis collected a specimen from the Tambourine Mt. area which Rupp said agreed with Weinthal's Toowoomba specimen. In the March 1935 paper Rupp says "It (D. kestevenii) has not been seen elsewhere (other than Alum Mt.) in spite of search by experienced collectors. He then draws attention to the fact that the distance from Bulladelah to Toowoomba in a direct line is approximately 350 miles and that Alum Mt. has an elevation of less than 1,000 ft. and is within 12 miles of the ocean, whereas the Toowoomba Highlands are 100 miles from the sea and reach a height of 3,000 ft.

The following table of distinctions between the two "species" is one drawn up by Rupp. Again, Rupp says "In both cases there is what we might term circumstantial evidence of an origin due to natural hybridization between Dendrobium speciosum and Dendrobium kingianum; and these putative parents being present in both localities, hybridization may easily have occurred independently with slightly different results."

	D. delicatum	D. kestevenii
1.	Stems pale, fairly numerous, slender, except for the lowest third, fluted.	Stems darker green, very numerous and crowded, robust but narrowing near the top, fluted.

Is It Or Is It Not ? continued

2. Dimension of longest stem (Rupp's recording) 36 cm. Diam. near base, 2½ cm. halfway 11 mm. near top 10 mm.	Stem 23.5 cm. Diam. near base 20 mm. top 10 mm.
3. Leaves longer and relatively narrower, longest 19.5 cm. X 3.5 cm. hardly recurved, dull.	Leaves recurved, moderately glossy. 17 cm. X 4 cm.
4. Time of flowering, Rupp's cultivated specimens in 1934, Sept. 13.	Same condition in 1934 Aug. 28.
5. Buds deeply suffused with purplish red, colour becoming lighter as flowers mature, but not disappearing.	Buds often delicately tinted pink, the colour disappearing as flowers mature, except sometimes on petals.
6. Number of flowers on raceme 7-14.	Number of flowers on raceme 6-23.
7. Flowers slightly smaller segments broader, but more acute.	
8. Disc of labellum with 3 longitudinal plates united for almost their whole length to the point of lobation of the labellum. There the two outer ones end in abruptly outcurved points, the median one dropping suddenly to the level of the labellum and continued along the mid-lobe. Mid-lobe of the labellum very broad, only slightly concave above, its margins very minutely serrulate.	Disc of labellum with 3 similar plates which gradually sink to the level of the labellum, and fuse along the midlobe. Mid-lobe very concave above margins; not serrulate.
9. Stigma oval	Stigma narrowing upward.

In Proceedings of the Linnean Society of New South Wales Pts. 111 - V (1933) 224, Rupp said "But the affinities are so close and so obvious, that my present view of the problem is, that it will be found advisable to unite these two to constitute a single species".
In the A.O.R. Vol. 3, No. 2 p.40. 1938, Rupp again discussed the question and said "In the Queensland Naturalist" for March 1935 I maintained that the differences between Mr. Weinthal's plant and kestevenii were sufficient to keep them apart. Subsequent observations of both forms in my bushhouse, have led me to agree that these differences are not greater than might be expected in specimens of one species, growing under different conditions in widely separated localities". He then continues "But in the meantime I have seen another reason for wondering whether Mr. Weinthal's plant was really delicatum at all. Mr. W.Schmidt of Turramurra, and Mrs. C.A. Messmer of Lindfield had plants labelled delicatum which were decidedly more distinct from kestevenii than Mr. Weinthal's". (So now we have the plant that came from Toowoomba, 350 miles away, of which Rupp said "I have no doubt," etc., suddenly becoming closer in its affinities to D. kestevenii than to D. delicatum) and, again, in the same article "At the present I will only express the opinion that the Weinthal plant is a South Queensland form of kestevenii and that the true delicatum is a smaller plant with much darker pseudobulbs and broader floral segments. None of the forms concerned could be mistaken for kingianum; but it seems probable on circumstantial evidence that delicatum and kestevenii originated independently from natural hybridization between kingianum and speciosum both of which abound in their respective localities" -

In the A.O.R. Vol. 4, No. 2, 1939. F.A. Weinthal says of D. delicatum "The type plant was collected at Spring Bluff, near Toowoomba, Qld. at some time prior to the year 1900 (presumably 1884. E.G.) by Mr. Benjamin Crow and forwarded by him to (the late) F.M. Bailey, then

continued on page 148.

Is It Or Is It Not ? continued

Colonial Botanist of that State, who named it. During the year abovementioned on one of his earlier visits to the Bluff the writer collected a number of plants on the rocks and cliffs there, which when in bloom later were submitted to Bailey, considered by him, and confirmed as D. delicatum, he remarking that they were of more robust growth than the original plants received from Crow. The pseudobulbs of these later (1900) plants were approximately twelve (12) inches high, with additional leaves of 5 to 6 inches, the bases of the bulbs being about one inch in diameter." Weinthal then goes on to mention that he grew these plants in Brisbane for some years until he left to live in Sydney, he afterwards obtained a piece of one of the plants and flowered it in Sydney and passed the flowers on to Rupp. This was after the discovery and naming of D. kestevenii of which Weinthal says "with blooms very similar to those of the 1900 plant, although the growth of the plant is distinct. This particular plant was much smaller in growth and the pseudobulbs of a deeper red. The flowers, however, both those open at the time of finding and the next season's flowering, appeared to be identical with those of the larger growing plant found in 1900. It is possible therefore that Bailey's original specimen may have been similar in growth to this more recently found plant."

Rupp also says in A.O.R. Vol. 4, No.4, p.125, 1939 and again I quote "The type D. kestevenii is a robust plant of about the same height as the type delicatum but stouter and furnished with shorter leaves, the racemes are strong and ERECT, bearing from 6 to 23 flowers, cream coloured and not expanding very widely" and "from the practical point of view, I think that until conclusive evidence to the contrary is produced, we should recognise both as species, each possessing variants from the type." (See H.J.R. Overall's photos in The Orchadian No. 11, p.131, 1965 which hardly support this contention).

In the Journal of Orchidology Vol.2. P.1 p.7. 1961, A.M. Blombery referring to this matter states "These two names have led to confusion and argument over the years. The late F.A. Weinthal was a strong antagonist of what he considered the wrong naming of the species by the late Rev. Rupp and ultimately this led to a break in their friendship. The writer has in his possession several letters written by Rupp to Weinthal, in which he admits making a mistake in wrongly naming the plant D. kestevenii, when the name D. delicatum was already in existence, unfortunately Rupp did not correct this error."

F.A. Weinthal, himself, in a letter to Mrs. Hilda Curtis, apparently written during 1932 said, referring to D. delicatum "it has lately turned up at Bulladelah in N.S.W. and has caused Mr. Rupp quite a lot of thought, especially as he described a similar plant as D. Kestevenii and later felt doubtful as to whether they were different."

I think that this is a fairly comprehensive resume of the literature and I will now discuss my own reactions to the various statements. I am not sure that the plants under discussion are entitled to specific rank as I do not know that they can reproduce themselves other than by vegetative means. Maybe some of our readers will be in a position to prove that they can and do. This, of course could only be proved from the actual germination in cultivation of seeds from plants known to be self fertilized. The fact that seed may be found on plants in nature will not prove anything as cross fertilization from one or other of the putative parents could possibly be effected. The spread of plants over areas in the bush that could not be vegetative does not necessarily mean that they are reproducing themselves from their own seed; the new plants could easily be more primary hybrids.

The gap between the type localities no longer has any point as collections of the plant in question have been made over the whole area in more recent years and L.W. Archer has in his possession a plant (a strong pink in colour) which is reported to come from the vicinity of St. Albans on the Macdonald River (just north of Sydney) thus extending the range still further. I would be pleased to receive from readers any information they may have as to general localities in which they know plants have been found. The argument that the plants vary because of the difference in

continued on page 149.

Is It Or Is It Not ? continued

altitude and climate is definitely not valid as the supposed parents are spread over a very extensive area with great variations of altitude and climate. Apart from the recognised varieties of both species there are in the case of D. kingianum many variations in growth from pseudobulbs. 4 cm. approx. in length X 1.5 cm. in diameter to others approximately 75 cm. in length with diameters as small as 20 mm. at the apex and as big as 3 cm. at the base: indeed I would not be surprised to find that readers have seen plants both larger and smaller than these. As for the floral characteristics; the range of colour runs from wholly white to pinks so deep that they are almost purple with many combinations between: the shape of the flowers is equally variable with labellums in shapes and widths ranging from narrow acute forms, with the edges incurved to broadly cuneate forms, mucronate apices and recurved edges. In the case of D. speciosum we have reasonably stable floral characteristics but this does not by any means apply to the pseudobulbs. These range from small, approx. 20 cm. long X approx. 4 cm. wide, very curved types which grow close to the host rock giving the appearance of a fan with curved blades to types which are around 75 cm. in length and 6 cm. or more in diameter. Referring again to the variation in D. kingianum, L. W. Archer claims that his collection of D. kingianum contains over 70 different forms and I have colour slides showing 35 distinctly different forms on one slide. When these factors are considered, added to the fact that each separate clone of D. delicatum found in nature may be a fresh crossing between parents of the same two species, but varying forms of them, I find it very difficult to attach any importance to the variations mentioned by Rupp, Weinthal and Schmidt.
R.F. Leaney in Australian Plants Vol.1. Pt.4. p.19. 1960, uses the name Dendrobium delicatum nm kestevenii (Rupp) Leaney. In my opinion this is not tenable as the International Code of Botanical Nomenclature, Art.5. requires that the use of the term "nothomorph" abbreviated nm. (This is an abbreviation of nothomorpha, derived from the Greek and meaning "hybrid form") is to be for the purpose of distinguishing forms of hybrids from the same parents. If it is accepted that D. delicatum is not a species and is purely a hybrid, the correct name would be Dendrobium X delicatum nm. kestevenii, meaning a form of the pleomorphic hybrid Dendrobium X delicatum - D. kingianum X D. speciosum. However if we accept D. delicatum as a species and as I said earlier, there appears to be no proof that it is not, we may use the name D. delicatum 'Kesteven' which is a form that is used for horticultural but not botanical purposes. Readers should note that in this case the name Kesteven is used with a capital letter, in single inverted commas and does not have a Latin form. In conclusion I will point out that whether we accept these plants as species or only as hybrids; progeny of the same parent species can only have one name: in this case Dendrobium delicatum (F.M. Bail) F.M. Bail. There is probably a lot more comment that can be added to this and I hope that readers will feel free to make it through the pages of The Orchadian and in conclusion I want to say that apart from the material appearing in quotes, all other opinions are mine and I am prepared to argue about them.

Eric G. Gordon, 263 Goulburn Street, Sydney. N.S.W.

A NEW COMBINATION FOR AN AUSTRALIAN HABENARIA.

A.W. Dockrill.

HABENARIA FERDINANDII SCHLTR. VAR. ARNHEMICA (BENTH.) DOCKRILL COMB. NOV.
SYN.: H. arnhemica F. Muell. Herb.
H. graminea var. arnhemica Benth., Flor. Austr. 6: 394(1873).

In 1911 Schlecter pointed out that the species known in Australia as Habenaria graminea Lindl. was, in fact, a different species from Lindley's, and gave the name H. muelleriana to the Australian plant. Almost immediately he found that that species name had been used for a Brazilian plant by Cogniaux in 1893, so gave the name H. ferdinandii to the Australian species in 1912. As far as the present author can ascertain, however, neither he nor any other subsequent author, has given a new

continued on page 150.

A New Combination for An Australian Habenaria. continued

combination to var. arnhemica, so this present paper is designed to overcome that omission.

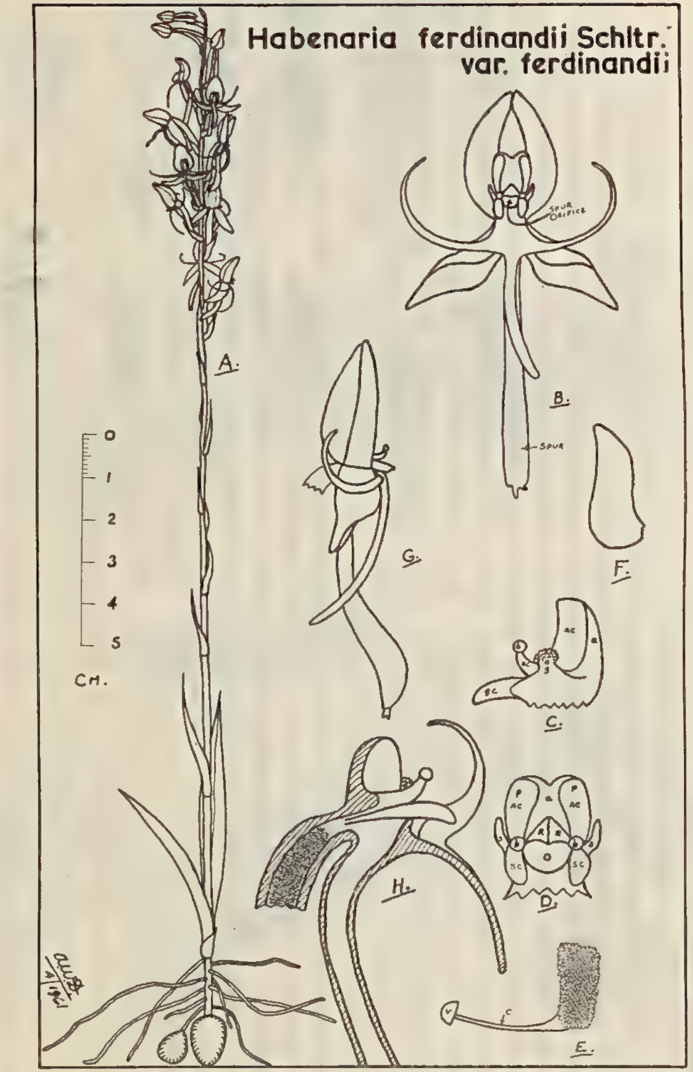
A. W. Dockrill, 11 Balzer Close, Edge Hill. Cairns. Nth. QLD.

A NEW SPECIES OF HABENARIA.

A. W. Dockrill.

Habenaria anomala Dockrill, species nova, differt speciebus omnibus australiensibus sic: labellum integrum, sine calcari et lobis lateralibus.
Holotype: Proserpine, north Queensland (K. Macpherson 31-3-1964-BRI)
Distribution:- so far only recorded from the type locality.
Plant up to 35 cm. tall. Tubers 12-15 X 8-11 mm., usually broad ovoid but sometimes almost cylindrical. Roots 2-4 mm. diam., thickest in the middle and tapering to both ends. Leaves 2-3, basal, 30-90 X 4-7mm., linear, acuminate, thin, concave (channelled). Peduncles about 2.0-2.5 mm. diam.; bracts usually 5, 10-30 X 2-3 mm., acuminate, sheathing. Pedicels about 3mm. long, slender; subtending bracts averaging about 10 X 1.5 mm., acuminate. Ovaries 10-15 X 1.5-2.5 mm., tapering at both ends, straight or slightly curved. Flowers 8-20, about 12-13 X 10-12 mm., white, dorsal sepal and petals forming an erect galea, lateral sepals deflexed from the very base. Dorsal sepal about 6.5 X 3.5 mm., ovate, concave, 3-nerved. Lateral sepals about 7.0 X 2.5mm., ± obfalcate. Petals about 6 X 3 mm., obliquely ovate. Labellum about 6.0 X 2.5 mm., entire, not spurred, projected forwards in the basal third, then reflexed almost at a 90° angle and the very apex again bent inwards; when the labellum is flattened out it is about 8.0 X 2.5 mm., narrow subtriangular to narrow subovate and slightly constricted about the middle. Column erect, about 2.5 X 2.5 X 3.5 mm.; staminodes one on each side near the bases of the arms of the stigma, erect, about 0.5 mm. tall, suboblong, slightly papillose at the apex. Stigmatic arms not connected to the labellum, close together, extending forward past the anther channels. Rostellum erect, deltoid, situated between the anther cells. Anther filament erect. Anther cells oblique so that at their apices they are almost touching but near their bases they are rather widely separated, produced at their bases into channels about 1 mm. long at right angles to them. Pollinia 2, soft, granular, each with a separate filiform caudicle about as long as the pollinia and at right angles to them; retinacular of moderate size, hemispherical.
It is difficult to ascertain where the affinities of this species lie, its lack of spur and lateral lobes of the labellum, and ± erect labellum readily distinguish it from all other Australian species. Being without spur and lateral lobes of the labellum, the author's first impression of this plant was that it was a teratological form (in this case one with a petaloid labellum) of some other species, and this impression was also expressed by two overseas authorities (without seeing a specimen) to whom the matter was referred. However, 3 specimens were received from Mr. Macpherson, who also gave the assurance that other specimens occur in the area. All flowers of all of the 3 specimens were perfectly formed and agreed in all details, a combination of which would be unlikely to occur in a teratological form. Also a teratological form would have to be such of some other species, almost certainly one occurring in the vicinity. The 2 species falling into such a category, H. ferdinandii Schltr. and H. eurystoma Schltr., however, bear little resemblance to the present plant. The absence of lateral lobes of the labellum is not such a radical departure from the normal as the Australian H. xanthantha F. Muell. often lacks lateral lobes and H. angustata (Bl.) O. Ktze. of Malaysia and Indonesia is always without them. The lack of a spur does at first seem a major departure from the normal, but when one considers that several Australian species, notably H. ovoidea Rogers and White, have very small spurs, the next step to a spurless labellum is not so very great. All details of the column are so typically those of Habenaria, that the consideration to place the species in a new genus is not warranted.

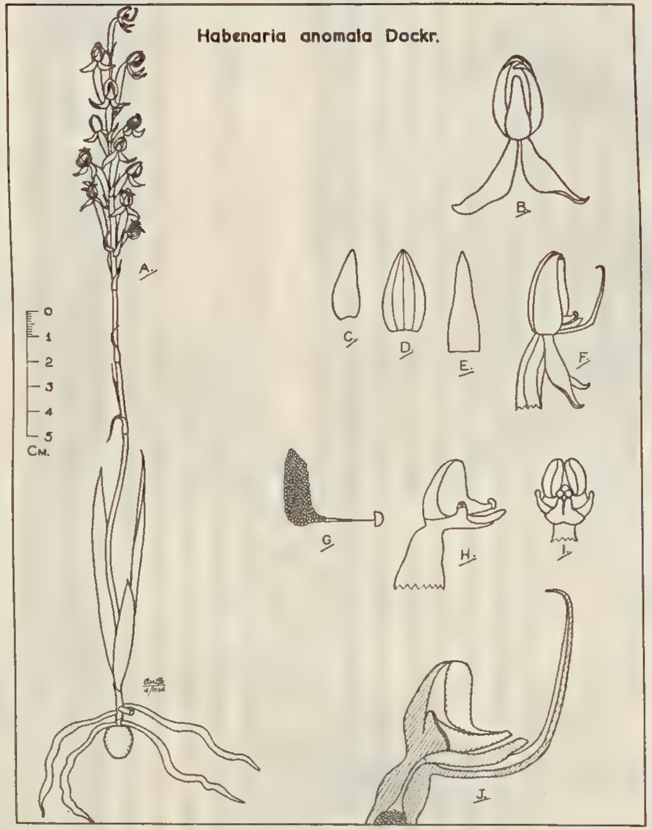
A. W. Dockrill, 11 Balzer Close. Edge Hill. Cairns. Nth. Qld.



Habenaria ferdinandii Schltr. var. ferdinandii

A. PLANT............TO INDICATED SCALE
B. FLOWER FROM THE FRONT...............TO SCALE X 9
C. COLUMN FROM THE SIDE...................TO SCALE X 10
D. COLUMN FROM THE FRONT.................TO SCALE X 10
E. POLINIUM.......................................TO SCALE X 20
F. PETAL FLATTENED OUT..................TO SCALE X
G. FLOWER FROM THE SIDE..................TO SCALE X
H. MEDIAN LONGITUDINAL SECTION
OF COLUMN & LABELLUM.................TO SCALE X 10

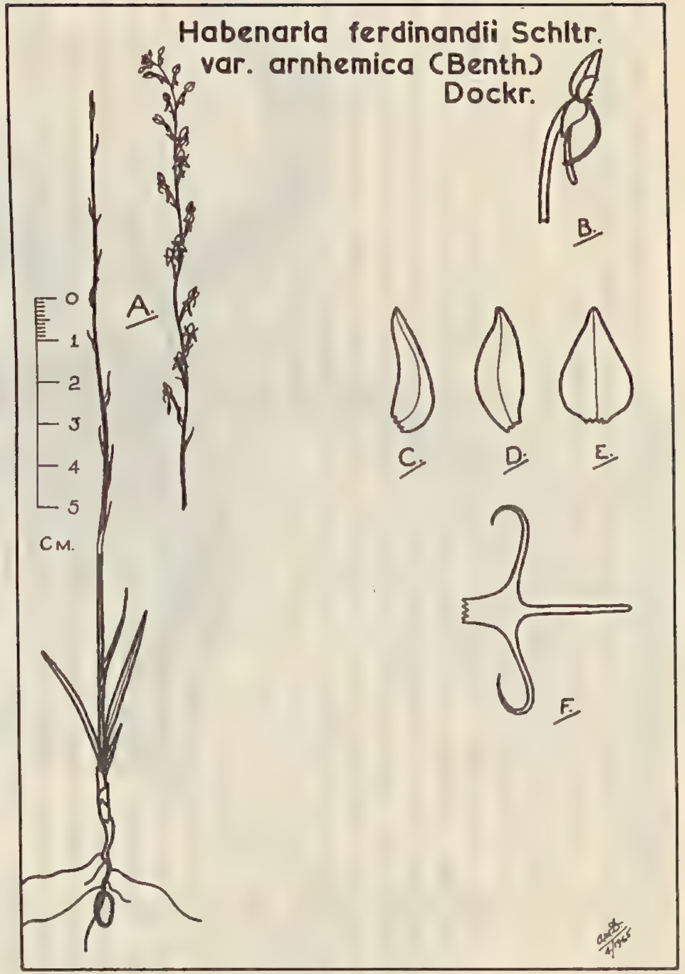
a - ANTHER CAP
ac - ANTHER CELLS
b - BURSICLES
c - CAUDICLE
s - STAMINODES
sc - ARMS OF THE STIGMA
v - RETINACULUM



Habenaria anomala Dockr.

A. PLANT............TO INDICATED SCALE
B. FLOWER FROM THE FRONT...............TO SCALE X 5
C. PETAL FLATTENED OUT.....................TO SCALE X 5
D. DORSAL SEPAL FLATTENED OUT......TO SCALE X 5
E. LABELLUM FLATTENED OUT............TO SCALE X 5
F. FLOWER FROM THE SIDE...................TO SCALE X 5

G. POLLINIUM FROM THE SIDE...............TO SCALE X 15
H. COLUMN FROM THE SIDE...................TO SCALE X 10
I. COLUMN FROM THE FRONT...............TO SCALE X 10
J. MEDIAN LONGITUDINAL SECTION
OF COLUMN & LABELLUM.................TO SCALE X 15



Habenaria ferdinandii Schltr. var. arnhemica (Benth.) Dockr.

TAKEN FROM HERBARIUM MATERIAL (058353 BRI-ARNHEM LAND)

A. PLANT............TO INDICATED SCALE
B. FLOWER FROM THE SIDE...................TO SCALE X 5
C. PETAL
D. LATERAL SEPAL
E. DORSAL SEPAL
F. LABELLUM LOBES
} FLATTENED OUT AND .... TO SCALE X 10

GETTING TO KNOW OUR NATIVE ORCHIDS.

Walter T. Upton.

Some time ago I lectured to the Warringah Group of our Society and with the aid of slides of some of my drawings of our native orchids pointed out to them the various parts of the plant and flower. Since then I have been approached to put this talk into article form.

The family Orchidaceae is an extremely large and varied one and although there are only about 600 species native to Australia they are also extremely varied in size, shape and kind, and to write of the parts of the flowers and at the same time illustrate all the differences both between the species in a particular genus and then between all our native orchid genera would mean that before I could start, it would have been necessary for me to have drawn and studied each and every one of our native orchids, (an ambition I hope to fulfil) unfortunately I have drawn but a few of them, therefore I can only use these in my illustrations. I have used the genus Pterostylis to illustrate the great differences in shape and sizes in this genus of terrestrial orchids because I have more drawings of this particular genus than any other and likewise as a genus of epiphytal orchids I have used the genus Bulbophyllum. Although the illustrations of various other native orchids are a good cross section they are by no means complete and one could very easily criticize the fact that I have not used illustrations of such genera as Habenaria, Anoectochilus or say Chiloschista which are quite different, but I haven't drawn them and I have not got them in my collection or herbarium, so please do not consider this article as a treatise on our natives but merely one to assist members in getting to know the parts and thereby enjoying our native orchids better.

Let us first briefly consider the position of the family Orchidaceae in the great family of plant life and we will find that it is indeed the most highly advanced of all. It is a member of that Class known as Monocotyledons (solitary seed leaf). Whereas the first formed seed leaf is obvious in most seedlings of this class, this is not so in orchids as the seed is very minute and doesn't contain a store of food as most other seeds do. Their growth is usually very slow and some of our natives are not seen to be in growth for months and are then so small it is difficult to see the various parts of the new seedling forming.

Generally the family Orchidaceae can be said to:-

(1) Have irregular flowers (that is they cannot be divided into two equal halves through any vertical plane.)

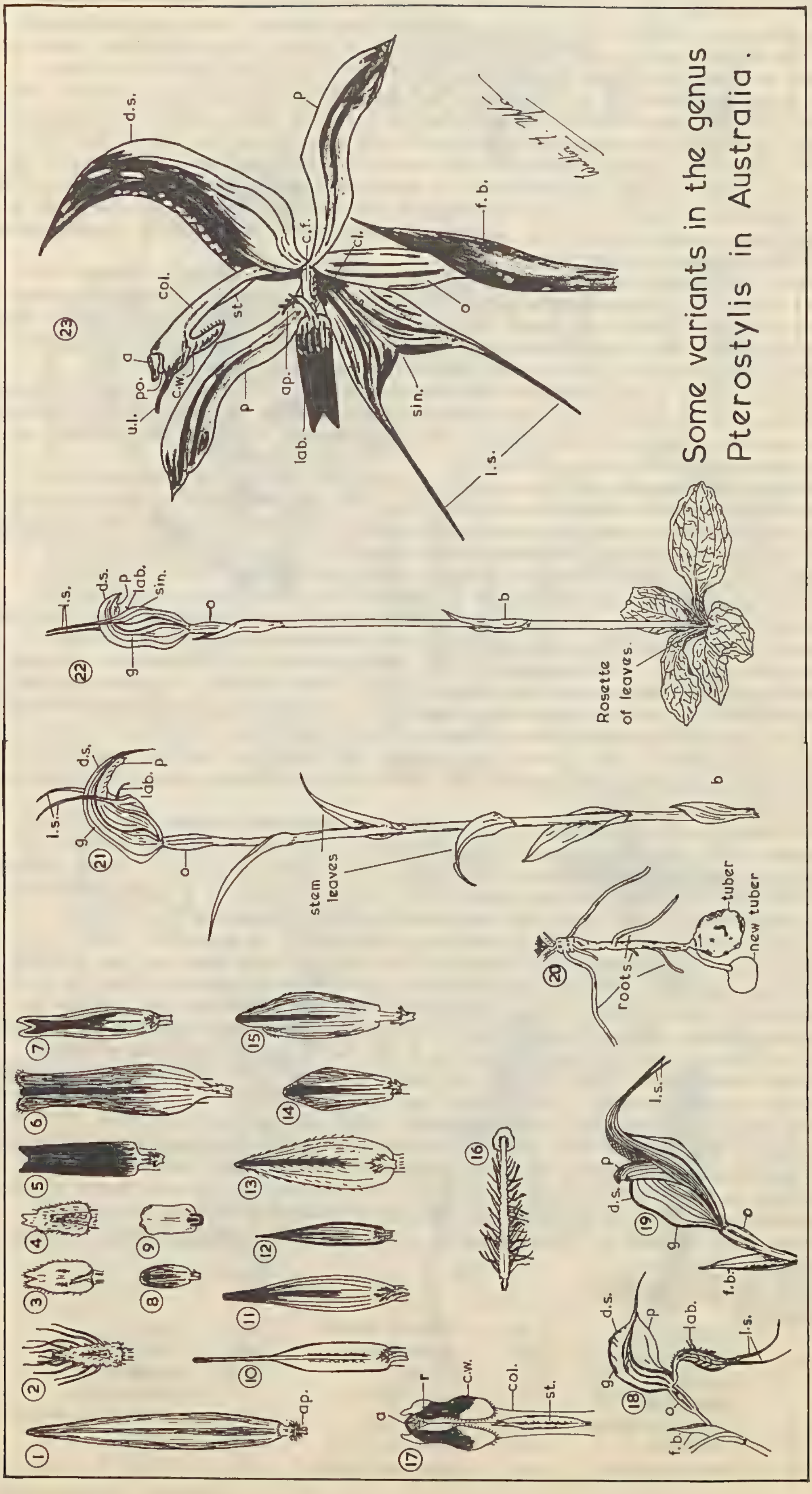
(2) The flowers are zygomorphic (that is the two sides of the flower are the same although the front and back of the flower are not.) Some of the flowers of our terete leaved Dendrobiums are not entirely zygomorphic as the markings on the labella do differ slightly from one side to the other, they are not complete mirror-images of each other, however the parts are the same.

(3) The ovary is one celled.

(4) The stamens and style are combined and form a column.

The flower of the family Orchidaceae, as in many other families that belong to the Monocotyledons, has a perianth that is in two whorls of three segments. The outer whorl consists of the three sepals, these are said to be petaloid sepals as they are coloured. As a matter of interest the Lily and Iris families also have coloured sepals whereas in most other flowers they are green. The inner whorl consists of three petals. In the majority of genera, the two lateral petals are the same, but the third petal is usually modified and differs considerably from the other two and is often the most beautiful part of the flower. One of its main purposes in life is to attract the various pollinating agents, and in most cases acts as a platform for the 'callers' to alight on. I said above that the third petal is usually modified, but, in the genera Thelymitra this is not quite the case and you will see from the drawing of T. ixiodes that the perianth appears almost regular. To consider both the sepals and petals together for a moment. These segments are extremely varied; in some flowers the sepals are the largest segments and in others the petals are the largest. In the Pterostylis genus the dorsal sepal and the petals are joined together to form a hood (galea.) In some flowers the lateral sepals are joined together as shown in the drawing of Bulbophyllum mac phersonii, and there are many other differences that could almost fill a book. To continue with the flower, we now come to perhaps the most important part, the column. As said previously this is the style

continued on page 154.



Some variants in the genus Pterostylis in Australia.

Getting To Know Our Native Orchids. continued.

and stamen fused together, these are the reproductive organs. All Australian native orchids belong to the sub-family Monandrae, (that is, they only have one stamen,). From our point of view, therefore, we shall consider the column as only having one stamen. The part of the column that contains the pollen is called the anther, and the attachment of the anther to the column is all important from a classification point of view as the sub-family Monandrae is divided into two main divisions (1) Basitonae and (2) Acrotonae. The Basitonae are distinguished by the anther being joined to the column by its front or base, and in the Acrotonae division the anther is attached at the apex or at the top of the column, also the anther falls off very easily in this division. (There are of course other points of distinction in these two divisions.) Only one genus of Australian native orchids belongs to the division Basitonae and that is Habenaria, and its species, about a dozen, come from North Queensland and the Northern Territory.

Under the anther we have the pollinia (singular pollinium.) These consist of lots of pollen grains joined together into a mass and held together by threads. There are many differences in the type of pollinia and in the structure of their pollen masses; these differences are very important in the classification of orchids into tribes and sub-tribes.

Next we come to the female reproductive organ, this is called the stigma and as will be seen from the illustrations, is quite variable both in position on the column and its shape. It is necessary to place the pollinia on to the stigma to effect pollination.

Between the stigma and the anther in most of our native orchids is a special structure called the rostellum. This is the third or sterile stigma or at least formed from a third stigma, in many orchids this appears as an extension of the top part of the stigma. The rostellum is often quite long and in the form of a beak, hence its name. The viscid disc which is joined to the pollinium is part of the rostellum, occasionally there is a small pouch (bursicle) at the end of the rostellum covering the viscid disc, this is to prevent the sticky substance on the viscid disc from drying up. The purpose of the rostellum is to prevent the pollinia coming into contact with the stigma of the same flower. Apart from the rostellum the orchid uses many ingenious devices to prevent self-pollination, but at the same time it also, in some species, actually assists self-pollination. The genus Thelymitra for instance has many species that are regularly self-pollinated, some of the flowers never opening yet pollination takes place.

The family orchidaceae is said to have an 'inferior' ovary, by this it means it is below the parts of the flower. The ovary is one celled in Monandrae. Inside the ovary we have three lines of ovules. Each ovule contains a female cell and these cells are fertilised by a male cell which is sent down a tube after the pollinia has been placed on the stigma.

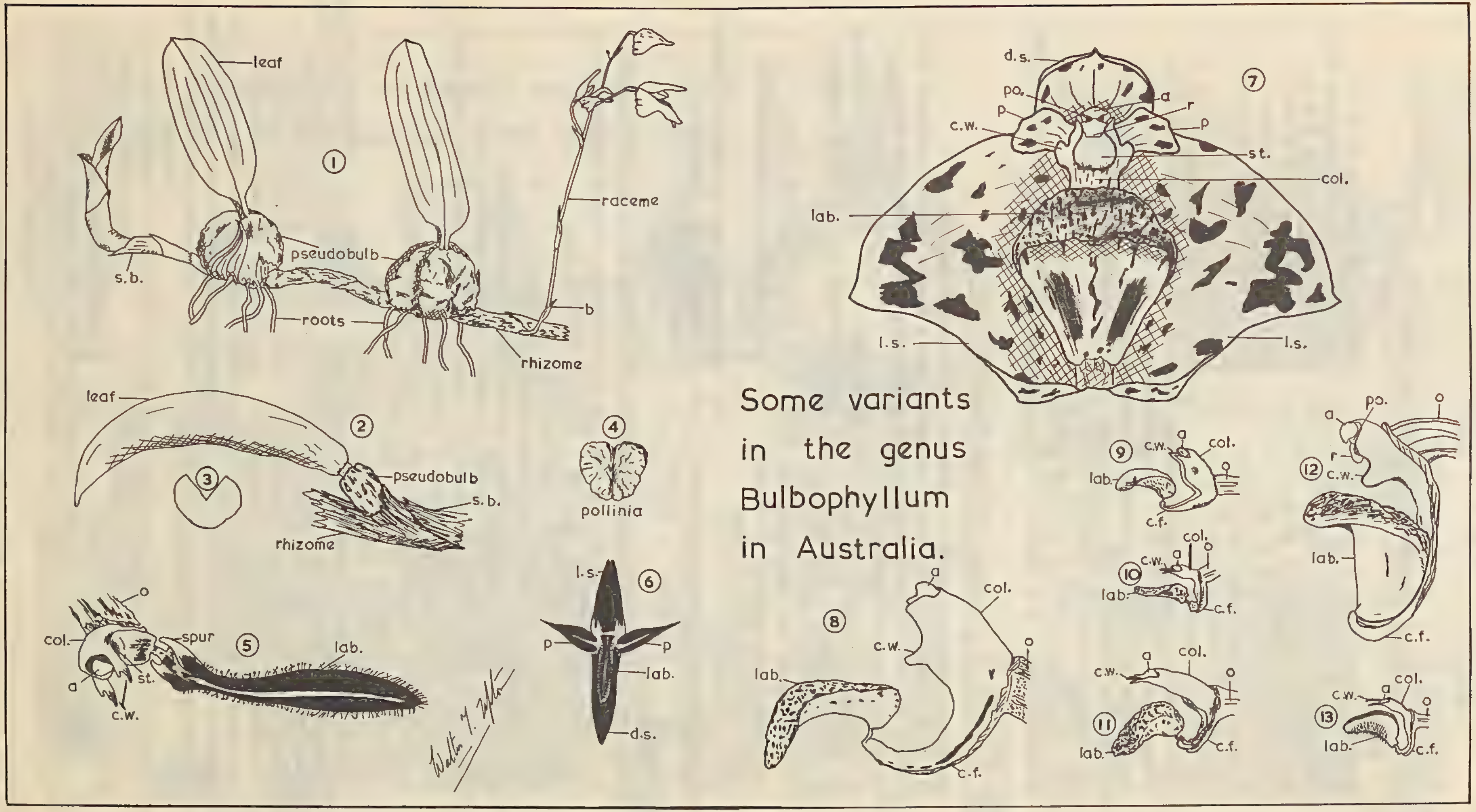
As far as the parts of our plants are concerned, if possible, these are even more varied than the flowers, but very briefly they can be divided into two groups. Firstly those whose growth is sympodial, that is each annual or new growth arises laterally from the previous one. This includes plants whose flowers are terminal on the annual growth (an example of this is the Pterostylis genus.) the very great majority of these plants are terrestrial. It also includes plants whose flowers are lateral on the annual growth. In some of our native orchids, racemes of flowers originate from the top, side and base of the pseudobulb and also from the rhizome itself, this will be seen in the drawing of Bulbophyllum exiguum. In numerous epiphytes, flowers appear from the same pseudobulb for quite a number of successive years. The second group are those whose growth is said to be monopodial (the main stem continuing its growth from year to year.) These include such genera as Sarcochilus, Sarcanthus and Vanda.

KEY TO DRAWINGS.

General.

a.	- anther	d. s.	- dorsal sepal	p.	- petal
ap.	- appendage	f. b.	- flower bract	po.	- pollinia
b.	- bract	g.	- galea	ped.	- pedicel
c.	- caudicle	h. t.	- hair tufts	r.	- rostellum
cl.	- claw or hinge	lab.	- labellum	s. b.	- sheathing bract
col.	- column	l. l.	- lateral lobe	sin.	- sinus
c. f.	- column foot	l. s.	- lateral sepal	st.	- stigma

continued on page 156.



Some variants in the genus Bulbophyllum in Australia.

Getting To Know Our Native Orchids. continued

KEY TO DRAWINGS

General continued

c.w. - column wings
m.l. - mid lobe
u.l. - upper lobe
cr. - crest
0. - ovary
v. - viscid disc

DRAWING NO. 1.

Some variants in the genus Pterostylis in Australia.
1 to 16 - Various labella - all twice natural size.

1. Pterostylis falcata Rogers.
2. Pterostylis boormannii Rupp.
3. Pterostylis vitatta Lindl.
4. Pterostylis longifolia R. Br.
5. Pterostylis concinna R. Br.
6. Pterostylis pulchella Messmer.
7. Pterostylis ophioglossa R. Br.
8. Pterostylis nana R. Br.
9. Pterostylis mutica R. Br.
10. Pterostylis grandiflora R. Br.
11. Pterostylis truncata Fitzg.
12. Pterostylis reflexa R. Br.
13. Pterostylis nutans R. Br.
14. Pterostylis hildae Nicholls.
15. Pterostylis curta R. Br.
16. Pterostylis barbata Lindl.
17. Column of Pt. pulchella Messmer from front, twice natural size.
18. Flower of Pt. rufa R. Br., natural size.
19. Flower of Pt. recurva Benth., natural size.
20. Tuber and roots of Pt. acuminata R. Br., natural size.
21. Pt. reflexa R. Br., natural size.
22. Pt. concinna R. Br., natural size.
23. Exploded view of a flower of Pt. concinna R. Br., greatly enlarged.

DRAWING NO. 2.

Some variants in the genus Bulbophyllum in Australia.

1. Bulbophyllum exiguum F. Muell., twice natural size.
2. B. crassulifolium (A. Cunn. apud Lindl.) Rupp., twice natural size.
3. Cross section of leaf of B. crassulifolium, twice natural size.
4. Pollinia, greatly enlarged.
5. B. macphersonii Rupp, greatly enlarged.
6. B. macphersonii Rupp, flower approximately three times natural size.
7. B. weinthalii Rogers, greatly enlarged.

8 - 13 columns and labella from side, four times natural size.

8. Bulbophyllum baileyi F. Muell.
9. Bulbophyllum bracteatum F.M. Bailey
10. Bulbophyllum johnsonii Hunt.
11. Bulbophyllum nematopodum F. Muell.
12. Bulbophyllum weinthalii Rogers.
13. Bulbophyllum radicans Rogers et Nich.

DRAWING NO. 3.

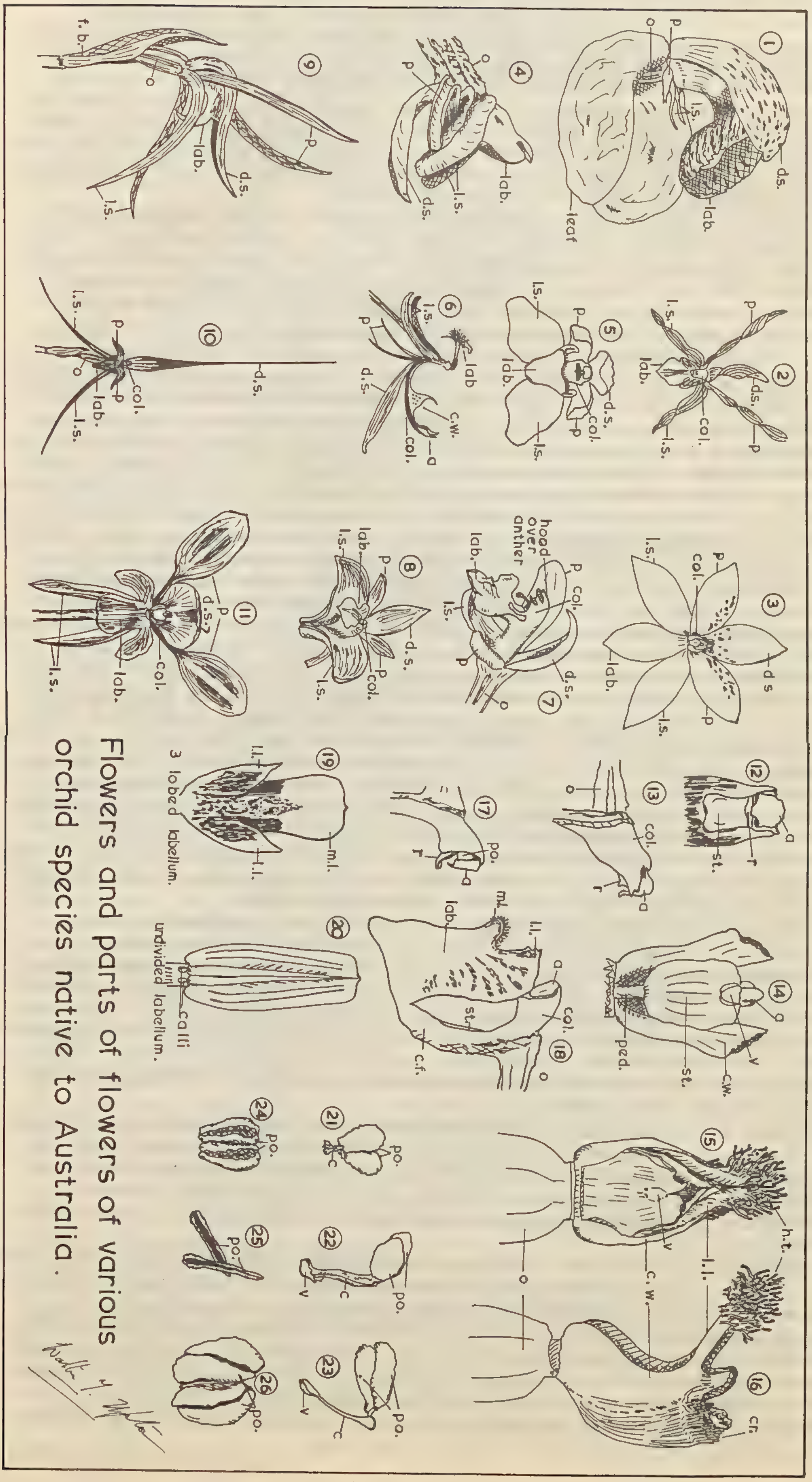
Flowers and parts of flowers of various orchid species native to Aust.

1. Corybas diemenicus (Lindl.) Rupp and Nicholls, twice natural size.
2. Dendrobium johannis Reichb., flower natural size.
3. Thelymitra ixioides Sw., natural size.
4. Malaxis latifolia Sm., six times natural size.
5. Sarcochilus tricalliatus Rupp, three times natural size.
6. Spiculaea irritabilis (F. Muell.) Schltr., twice natural size.
7. Acriopsis nelsoniana C. M. Bail., approx. three times natural size.
8. Dendrobium kingianum Bidw., natural size.
9. Lyperanthus suaveolens R. Br., approx. twice natural size.
10. Acianthus caudatus R. Br., natural size.
11. Diuris longifolia R. Br., natural size.
12. Column of Dendrobium bairdianum Bail., from front, 4 times nat. size.
13. Column of Dendrobium bairdianum Bail., from side 4 times nat. size.
14. Column of Diuris longifolia R. Br., from front, greatly enlarged.
15. Column of Thelymitra ixioides Sw., from front, greatly enlarged.
16. Column of Thelymitra ixioides Sw., from side, greatly enlarged.
17. Column of Sarcochilus tricalliatus Rupp from side, 8 times nat. size.
18. Column & labellum of S. tricalliatus from side, 8 times natural size.
19. Labellum of Cymbidium madidum Lindl. from above, approx. 3 times natural size.
20. Labellum of Acianthus reniformis (R. Br.) Schltr., from above 3 times natural size.

21 - 26 Pollinia - greatly enlarged.

21. Eria fitzalanii F. Muell.
22. Sarcochilus tricalliatus Rupp.
23. Acriopsis nelsoniana C. M. Bail
24. Dendrobium schneiderae Bail.
25. Lyperanthus suaveolens R. Br.
26. Corybas diemenicus (Lindl.) Rupp and Nicholls.

Walter T. Upton, 71 Wesley Street, Elanora Heights, N.S.W.



Flowers and parts of flowers of various orchid species native to Australia.

ON THE STRUCTURE OF THE ORCHID FLOWER.

Edwin D. Hatch.

The orchid flower is peculiar because it is adapted for cross-pollination by specific insects. There are as many flower vatiations as there are insect types to pollinate them. Wasps, butterflies, bees, ants, moths, spiders and chewing beetles are all catered for. The attraction is centred in the middle petal (labellum), and may be perfume, colour or nectar, or perhaps edible calli. Sometimes the labellum assumes the form of the insect concerned and near-mechanical devices, traps and pitfalls are not uncommon. The pollinating mechanism of our native orchids has been largely evolved outside New Zealand and the local insect fauna is not sufficiently diverse to do it justice. Consequently there is a strong secondary tendency towards self-fertilisation or even cleistogamy (self-fertilisation within the unopened flower).

The flower of the orchid is basically liliaceous, but the relationship is often hard to trace. The ovary is inferior, i.e. below the flower; is ribbed, and opens by longitudinal slits. This is a useful point of identification. We may imagine the hypothetical orchid ancestor as having 3 petals, 6 stamens in 2 whorls, and a single style with a 3-fid stigma. The fusion of 4 of the stamens with the already confluent styles would seem to have developed in different ways to produce different groups of orchids, but in all of them it would appear to have preceeded the specialised perianth. With the organs of reproduction in confluence; normal pollination became impossible, and the next logical step in the flowers development was the modification of the abaxial segment (in this case the middle sepal) to form a landing stage for insects. But the middle sepal, being an outer covering segment, could not lend itself to the delicate modifications which eventually took place, so the ovary became twisted through 180° to bring the middle petal (labellum) into the abaxial position, where it could be more easily adapted to the formation of nectaries and calli, and the finer shades of colour and form. At the same time the middle sepal came round into the dorsal position where by reason of its heavier texture and protective nature, it could serve as an awning over the anther. The modification of the labellum was completed by its fusion with the 2 remaining free stamens. Most orchids begin with the flower in its original position and the ovary twists during development. In Prasophyllum (and I notice in Gastrodia sesamoides too !) the flower is inverted with the labellum uppermost - actually the right way up ! Here is a point worth studying. Has the ovary in these species not twisted at all ? Or has it twisted through the whole 360° and so come back to its starting point ?

All the New Zealand orchids belong to the sub-family Orchidoideae, which has but one fertile anther and 2 fertile stigmas. The structure of such a flower may be summarised as follows - Theoretically there are 15 segments in 5 whorls of 3. In each whorl 2 of the segments are paired and the third usually different in form or function or both.

WHORL (1) - 3 styles, each capped by its stigma, confluent to form a single structure (column) in the centre of the flower. 2 of the stigmas are paired and combine to form the stigmatic plate on the front of the column. The third stigma, or a portion of it, appears to be modified to form the rostellum at the top of the column. (The exact nature of the rostellum is causing much discussion at present and the question is far from settled. The above conclusion however, seems to be correct for the majority of the local species. This is another problem which would repay study.).

WHORL (2) -3 stamens, 2 of them paired and confluent with the sides of the column to form the column-wings (very prominent in Thelymitra, where they supersede the insect-attractive function of the labellum), the third stamen confluent with the front of the column (except in Petalochilus calyciformis where it appears as a basal appendage).

WHORL (3) -3 stamens, 2 of them paired and confluent with the labellum to form the various labellar calli, the third (the only fertile stamen in the sub-family Orchidoideae) usually confluent (but not in Thelymitra) with the back of the column and carrying the 2-celled anther, which overtops and usually rests on the rostellum. (In Pterostylis the 2 paired stamens of this whorl do not enter the labellum proper but appear as the ciliate processes of the labellum appendage: In Thelymitra - but only in the sub-genus Theltmitra - they are included in the front edges of

continued on page 159.

On The Structure of The Orchid Flower. continued

the column-wings and finally extruded as the cilia of the secondary lobes).
WHORL (4) - 3 petals, 2 of them paired, the third (labellum) rarely similar (Thelymitra, Petalochilus) usually much modified to form an attractive landing-stage for insects.
WHORL (5) - 3 sepals, 2 of them paired, the third (dorsal) sometimes similar, usually much enlarged, its main purpose being to canopy the anther.
Most orchid genera are subject to reversion and odd ancestral features, free stamens, petaloid labella etc. may be found from time to time. Such are as a rule infertile and their peculiarities die with them. Once in a while however, these mutations do not interfere with the reproductive processes and we get forms like Petalochilus, which become quite abundant until man interferes with the habitat. Ordinary malformations are also common. Repressed or enlarged organs, twin labella, petals etc., double or multiple flowers. These are often due to insect, fungus diseases, or to purely mechanical causes.

Edwin D. Hatch, 583 Tane Road, Laingholm Central, Auckland S.W.4.
New Zealand.

ON AUSTRALIAN DENDROBIUMS.

Alex D. Hawkes.

My proposed alterations of nomenclature for two Australian Dendrobiums have created confusion - and obvious annoyance - on a far greater scale than seems warranted. This especially since these alterations (corrections of long-perpetuated errors, actually) are based on international regulations which govern plant taxonomy.
Some time ago I proposed the new name Dendrobium ruppianum to accommodate the homonymic D. fusiforme of F.M. Bailey, an Australian plant, since there exists a prior D. fusiforme (described by du Petit Thouars, and now referable to Polystachya).
In addition, I have pointed out on a number of occasions that Dendrobium undulatum of Robert Brown, a popularly grown primarily Australian species, was a homonym of D. undulatum of Persoon (now referable to the American genus Xylobium), and that the next available name for the plant was Dendrobium discolor Ldl.
Though D. ruppianum has not been utilised to any degree in breeding, and is not particularly frequent in cultivation outside of its native region, D. discolor has figured in the production of a great many of our fine modern hybrids of this genus -- as D. undulatum.
Several persons, including an orchidologist whose knowledge I consider considerable, have commented on my proposals, largely condemning them (even though R.E. Holttum, the orchid expert of whom I speak, admits that I am technically correct). It is of course a difficult thing to convince the entire orchid world that a given plant which has been known by such-and-such a name for many years must now be called a different thing. The hybrid authorities, to my mind, have not done a satisfactory job of reconciling much-needed nomenclatural corrections with their "official" lists, but my published suggestions seem to create nothing more than dissention, which is rather juvenile, it would appear to many of us.
Now a letter re. these two points and a couple of others has been published in the June 1965 issue of the Australian Orchid Review, by P.K. Searle who is one of the "Editorial Associates" of this publication, to which I have long been a regular contributor. I am certain that virtually all readers of my comments here are subscribers to the A.O.R., but it seems remarkable that this gentleman, in a position of some importance in an internationally valued magazine, would consider "such re-naming" to be "futile and harmful to orchid growing." And, further, that "orchid growing has suffered too long from botanists." Without the botanist, Mr. Searle would have no means of identifying his plants - whether Dendrobiums, Cymbidiums, Thelymitras, or what have you - and I for one would be interested to hear what his solution to the problem might be. Perhaps he can adapt the nomenclature of hybrid roses to the orchids, as he seems to propose, though his words confuse me. I have written a rebuttal to the A.O.R., and am curious to see whether or not it appears. I find it regrettable that a member of the board of this long-renowned publication should have so little interest in any sort of accuracy in its pages

continued on page 160.

On Australian Dendrobiums. continued

that he would write as he did. I know that faithful readers of The Orchadian do value accuracy, hence my remarks in this vein at this time.

Mr. A.W. Dockrill, whose invaluable articles appear in these pages regularly, has published a definitive article on Dendrobium discolor Ldl., accepting my opinions and giving us the sole comprehensive study of this species in Australia with which I am familiar. This appeared in Australian Plants 3 (21): 28 - 30. December 1964, and I do think that Mr. Searle and several other persons would do well to study its contents.

Alex. D. Hawkes, P.O. Box 435, Coconut Grove 33, Florida.U.S.A.

OBERONIA ATTENUATA Dockr.

Oberonia attenuata Dockr., Nth. Qld. Nat. 29, No. 126: 4 (Dec. 1960). Plant pendulous. Roots filiform, not very numerous. Leaves 4 - 7, 2 -15 X 0.5 - 0.6 cm., dark green, gradually tapering to an almost filiform apex, texture thinner than in either of the other two Australian species, O. titania Lindl. & O. muelleriana Schltr. Inflorescences about the same length as the longest leaves, many flowered; floral segments persistent even on dry capsules; bracts of pedicels about 1 mm. long, pugioniform; pedicels about 1 mm. long; capsules about 2 mm. long. Flowers 1.5 - 1.75 mm. diam., pale red-brown, sepals all similar, reflexed, cymbiform. Petals about ¾ the length of the sepals, reflexed, linear. Labellum about 1 X 1 mm., not column-embracing, trilobate, lamina oblong, all lobes deeply bifid; lateral lobes (rarely trifid or entire) about 0.5 mm. long, their arms always falcate and widely diverging; mid-lobe about 0.5 mm. long, its arms parallel, usually linear or oblong, but occasionally tapering to a point. Column about 0.5 mm. long, prominent, indistinctly winged in the apical half; wings extending as high as the apex of the anther; stigma reniform; anther white; pollinia translucent white, reniform.
DISTRIBUTION:- north Queensland, in lowland gorges.
FLOWERING PERIOD:- usually 4 - 9.
This species is readily distinguished from the other 2 Australian species by its pendulous habit of growth, the other 2 being of upright habit; leaves which are much darker, longer, narrower and thinner; labellum which has its 3 lobes bifid, a feature absent from the other 2 species.

A.W. Dockrill, 11 Balzer Close, Edge Hill. Cairns. Nth. QLD.

THE "RUFOUS GROUP" OF PTEROSTYLIS.

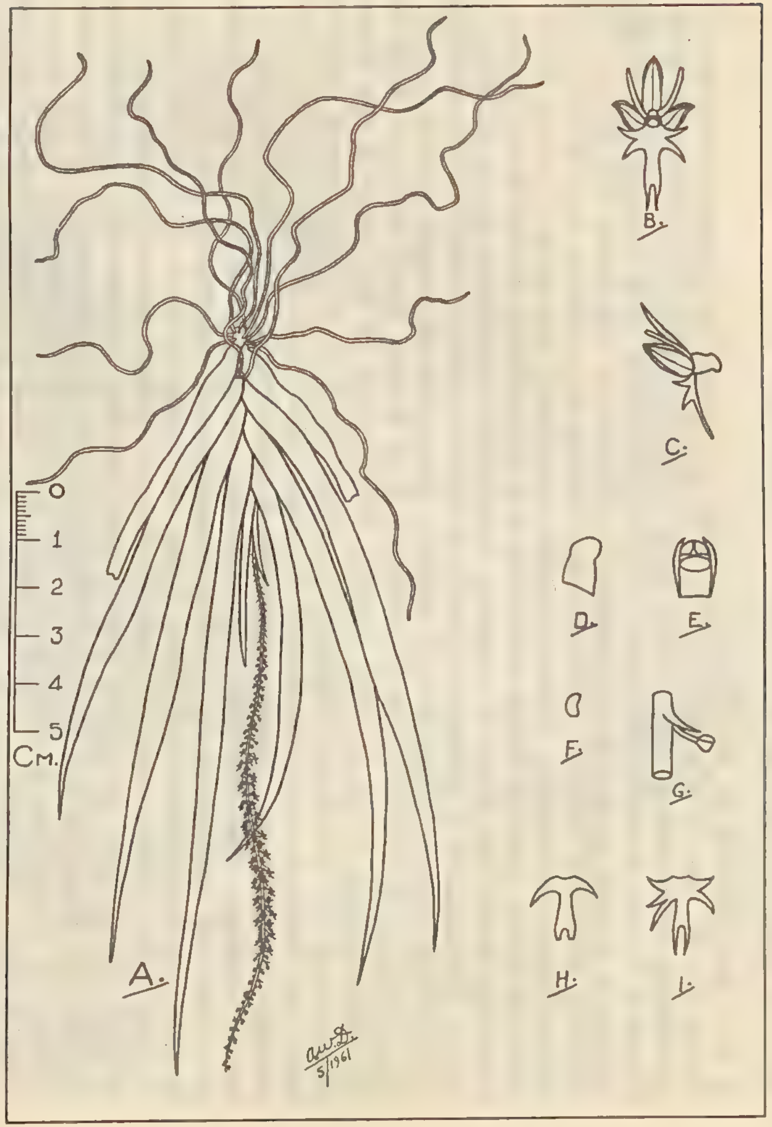
J.A.P. Blackmore.

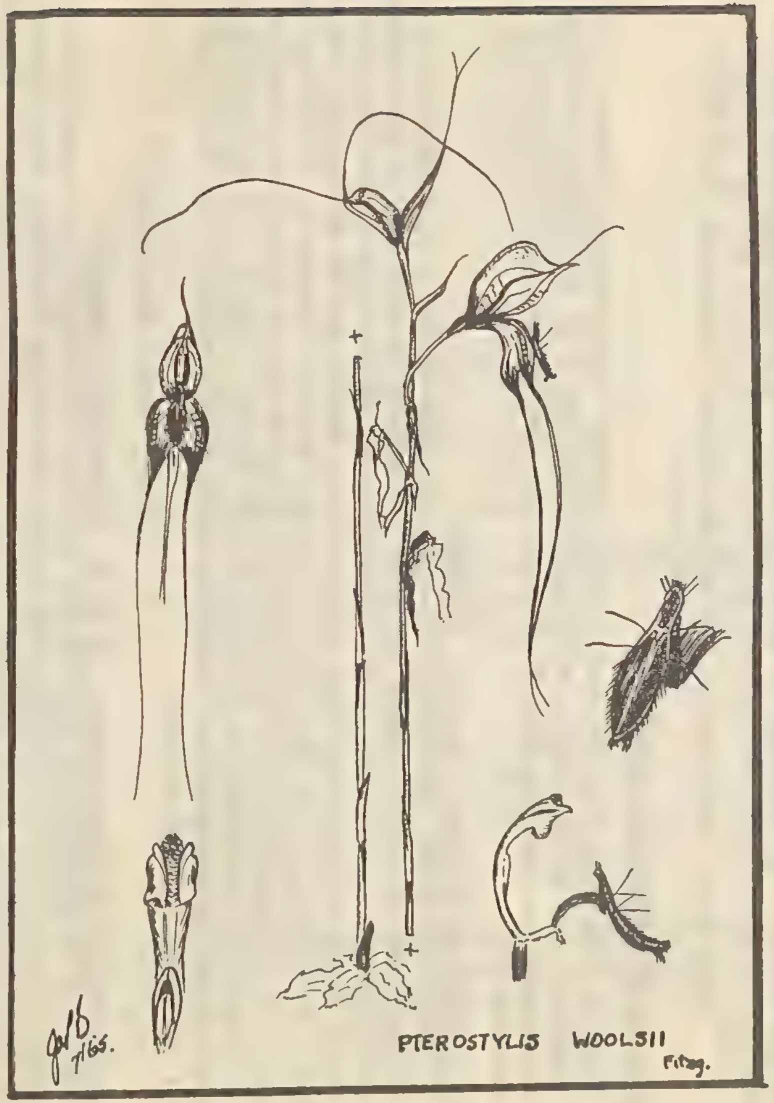
PTEROSTYLIS WOOLSII Fitzg.

So far as difficulties of classification or identification are concerned with the "Rufous Group", this species is the exception which proves the rule. Its extremely long dangling lower sepals make an identification point shared by no other pterostylis.
P. woolsii was described by R.D. Fitzgerald in 1876 in the second part of his "Australian Orchids" and named after a noted early Australian botanist Dr. Wm. Wools. The type locality was near Richmond N.S.W., presumably in one of the low rainfall forests containing ironbarks, on the Wainamatta shale. Conceivably it may still be found in the area but I have not been able to collect there, any of the group, apart from P. pusilla var. prominens Rupp.
Its known range is almost confined to N.S.W., there being one recording from the extreme south in Queensland and one from Victoria; Rushworth, (in light box-ironbark forest). In N.S.W. it cannot be considered by any means a common orchid, being scattered on the Dividing Range and Western Slopes. Most of the recent recordings have been from the Central Western Slopes. It prefers dry hillsides and grows in loose colonies. George Althofer, in a letter mentioned a colony of twenty-eight plants, the flowering time of which extended over about six weeks - from early November to mid. December. This flowering time is later than any of the other species in the group.

continued on page 162.

OBERONIA ATTENUATA DOCKR.





PTEROSTYLIS WOOLSII Fitzg.

KEY TO OBERONIA ATTENUATA

- A. PLANT............TO INDICATED SCALE
- B. FLOWER FROM THE FRONT.............TO SCALE X 20
- C. FLOWER FROM THE SIDE.................TO SCALE X 20
- D. COLUMN FROM THE SIDE................TO SCALE X 30
- E. COLUMN FROM THE FRONT.............TO SCALE X 30
- F. POLLINIUM FROM THE SIDE............TO SCALE X 50
- G. BRACT, PEDICEL & BUD.................TO SCALE X 5
- H. LABELLUM VARIANTS OCCASIONALLY ENCOUNTERED...............................TO SCALE X 20
- I. LABELLUM VARIANTS OCCASIONALLY ENCOUNTERED..............................TO SCALE X 20

The "Rufous Group" of Pterostylis. continued

A full description is as follows:
Plant 12-45 cm. high, pale green with a rosette of petiolate leaves, generally withered at flowering time. Stem bracts 2-5. Flowers 1-5, about 3.5 cm. around the curve of the galea and with exceptionally long filiform points to the lower sepals; Galea curved from the base, then shortly straight on top, abruptly decurving and ending in a filiform tip up to 2 cm. in length; Lower sepals conjoined for up to 1 cm., horizontal at base then abruptly deflexed and expanding, concave then contracting from the point of junction into filiform caudae up to 12 cm. long; Lamina of labellum lanceolate but continuous with an erect appendage, both concave and with a median longitudinal ridge, about 1 cm. long, margins cillate with in addition 2 or 3 long setae on each side of the lamina and a tuft of cilia and smaller setae at the apex of the appendage, apex of labellum slightly upturned and with a ciliate protuberance near the apex on the underside; Column incurved, longer than the labellum - about 2 cm. Upper wing-lobes reduced to short points, lower pair rounded, with margins inturned and densely ciliate. Stigma elongate, but not extremely so, with a membranous surround and hood. Reference to the description in Rupp "Orchids of N.S.W." p.96, will reveal certain amendments, particularly in the following matters: maximum height, length of sepals and number of flowers. In these respects the description has been based on large specimens in the herbaria of W. Brinsley and myself. As to size of the flower, Rupp says "not large", but they are larger than the flowers of most other species in the group. P. woolsii is quite spectacular in its grotesqueness of form and the tallest specimens are the largest in the group.

John A.P. Blackmore, 25 Holden Street, Ashfield. N.S.W.

ON FLUORIDATED WATER.

Without entering into the controversy on the fluoridation of water supplies, we quote below, abstracts from two N.S.W. Government departments in reply to Mr. E.W. Milton, one of our keenest orchid growers.

Department of Public Health, Sydney.

..."regarding the possibility of adverse effects on orchid plants due to fluoridation of public water supplies, I desire to inform you that some areas of the world, where the natural level of fluorine in the water is many times higher than that required for public health purposes, there have been reports of fluorine in various plants. There is, however, no record of any adverse effect on plant growth due to waters fluoridated to the levels required to prevent dental decay. There are no grounds, therefore, to believe that orchid growth will be affected by fluoridation of the public water supply.

J.D. Rimes, Under Secretary."

Department of Agriculture, N.S.W. Chemistry Branch.

"We are of the opinion that whilst fluorine is known to be cumulative in plant tissue when irrigated with water containing fluoride, the amount of fluorine likely to be present in town mains water under civic control would not have any deleterious effect either directly or by accumulation on plant life.

The optimum amount of fluorine in domestic town mains water has been assessed at 1 part per. million with allowable variations between 0.9 and 1.5 parts per. million.

T.H. Johns, Chief Chemist."

President's Report. continued.

In conclusion, I would thank all who have contributed articles and drawings. More are wanted and you are cordially invited to contribute.

On behalf of your Council.
W.H. Murdoch.
President.

STATEMENT OF RECEIPTS AND PAYMENTS

GENERAL ACCOUNT

	1964/65	1963/64		1964/65	1963/64
To Membership Subscriptions	226. 9. 0	217.	By Rent for Meeting	2. 2. 0	6.
To Bank Interest	11.13. 8	10.	" Printing and Stationery	58.17.11	4.
To Sundry Income	1. 8. 0	21.	" Donation - Orchid Society of N.S.W.	7. 0. 0	5.
			" Insurance	4. 1. 6	4.
			" Petty Cash Expenditure	23. 1. 0	25.
			" Postage	16.11. 8	-.
			" Freight	-. -. -.	5.
			" Ivory Board	-. -. -.	4.
			" Bank Charges	5. 8	1.
			" Excess of Receipts over Payments	127.10.11	194.
	239.10. 8	248.		239.10. 8	248.

PUBLICATION FUND ACCOUNT

	1964/65	1963/64		1964/65	1963/64
To Members Subscriptions	208. 4. 0	200.	By Printing	221. 9. 6	191.
" Donations from Members	17. 4. 6	140.	" Petty Cash Expenditure and Postage	14. 6.11	28.
" Sundry Sales	13. 6	1.	" Excess of Receipts over Payments	-. -. -	122.
" Excess of Payments over Receipts	9.14. 5	-.			
	235.16. 5	341.		235.16. 5	341.

E. Marygold.
Honorary Treasurer.

W.H. Murdoch
President.

I have examined the books of The Australasian Native Orchid Society and report that the above Statement of Receipts and Payments is in accordance with such books.

F. Wakeley, A.A.S.A. A.C.I.S.
Honorary Auditor.

A COMPARISON OF TWO PRASOPHYLLUMS. - According to Rupp.

L. Cady.

	Prasophyllum rufum	Prasophyllum mucronatum
HEIGHT:	4- to 30 cm. +	Very slender to 12 cm.
BRACT:	High up on stem often without any free lamina.	Leaf lamina close to the spike.
NO. OF FLOWERS:	2- 30+ spike dense.	6 - 12 spike crowded.
COLOUR:	Dark purplish-red.	Green & reddish-purple.
DORSAL:	2 - 3 mm. long broadly ovate but acute, deeply cucullate.	2 mm. long, broadly ovate, suddenly contracted into an acuminate point, deeply cucullate.
LATERALS:	Broad-lanceolate, widely diverging, longer than the dorsal.	C. 3 mm. long, linear, spreading, gland at apex, gibbous at bases.
PETALS:	Shorter almost triangular. (All segments sometimes with glands).	Scarcely 2 mm. triangular-lanceolate or almost rhomboid, always acuminate or acuminate or even with a filiform point, margins sometimes serrulate.
LIP:	Deep purple. As long as dorsal, broadening from base to 2/3 of length, suddenly constricted and recurved margins minutely crenulate towards tip or entire.	Deep purple, about 3 mm. long, oblong with rounded but mucronate apex; margins minutely serrulate or almost fimbriate at apex.
CLAW:	Semi-circular.	Very short.
CALLOUS PLATE:	Oblong with a narrow membrane.	Large, reddish-purple, widely channelled near base.
ANTHER:	Incurved.	Obtuse with a relatively large rotund gland on top.
STIGMA:		Oval.
COLUMN WINGS:	Long, unequally bilobate.	Equally bilobate, lobes obtuse, outer lobe minutely serrulate.

Rupp says: Vic. Nat. 65. 146 (1948) "The species seems nearer to P. nigricans than to any other, but the mucronate lip and the equally lobed column wings sufficiently distinguish it.

Leo Cady, P.O. Box 88. Kiama.
N.S.W.

NEW MEMBERS

Mr. P. March, 9 Boyd Street, Swansea, N.S.W.
Mr. C.C. Bunn, Logan Reserve Road, Kingston, A.C.T.
Mr. P. Chick, 16 Wade Street, Murwillumbah. N.S.W.
Mr. R.G. Carnley, 23 King Street, Warners Bay, N.S.W.
Mr. N.J. Firth, Spreyton, Tasmania.
Mr. L. Hutchings, 6 Francis Street, Coffs Harbour, N.S.W.
Mr. L. Johnstone, 25 Clarence Street, Glendale, N.S.W.
Mr. R.J. Langdon, 94 Newland Avenue, Marina, S.A.
Mrs. W.R. Anderson, 3 Lenington Parade, Adamstown Heights. Newcastle. N.S.W.
Mr. S. Burton, 9 Tyler Street, Campbelltown, N.S.W.
Mr. D.W. Broughton, 85 Bellevine Avenue, Greythorne, Qld.
Mr. G.A. Barker, 139 Fuller Street, Narrabeen, N.S.W.
Mr. A.G. Bal, Hecksweg 11, Renkum, Holland.
Mrs. P.M. Chapman, 18 Harwood Avenue, Murwillumbah, N.S.W.
Mr. M.J. Percival, 152 Flinders Avenue, Lota, Qld.
Mr. D. Penfold, 11 Milne Street, Shortland, N.S.W.
Mr. C.L. Roby, 4 Pallamana Parade, Beverly Hills, N.S.W.
The Director, Dept. of Forests, Konedobu, Papua, T.P. & N.G.
Mr. R.G. Amos, 11 Norman Avenue, Thornleigh, N.S.W.
Mrs. M.A. Raward, 117 Turpin Road, Southport, Qld.
Mr. A.G. Reeves, 72 Renway Avenue, Lugarno, N.S.W.

INDEX – THE ORCHADIAN – VOL. I. – Nos. 1–12

Compiled by S.C. Clemesha

		Number	Page
Acacia		5	58
		6	63
Acianthus		1	3
		7	88
		8	98
		9	110
		11	142
	caudatus	5	51
		6	66
		8	98
		12	156
	exsertus	2	19
		2	20
		4	45
		5	51
		6	66
		8	98
		11	143
	fornicatus	4	45
		5	51
		6	66
	reniformis	2	19
		2	20
		5	51
		6	62
		10	124
		12	156
Acriopsis nelsoniana		12	156
Adenochilus		1	3
Agathis australis		10	128
Allium cepa		5	58
Angophora floribunda		11	140
Anthurium		4	39
		6	63
Anoectochilus		12	152
Aporostylis		1	3
Aphyllorchis		10	115
	anomala	10	115
		10	116
		10	117
	elata	10	115
	elatae	10	116
	queenslandica	10	115
		10	117
	striata	10	116
	striatae	10	116
Araucaria	cunninghamii	7	84
		10	126
		11	140
		11	142
Arethusa	tetrapeala	10	130
Asplenium	nidus	5	57
Banksia		6	66
Belschmeidia	tarairi	1	4
Bletia		4	38
Boronia	megastigma	4	37
Bulbophyllum		1	3
		6	79
		11	140
		12	152
	aurantiacum	2	21
		3	38
		5	51
		7	84
		8	91
		11	140
	baileyii	11	131
		12	156
	bracteatum	5	51
		7	84
		11	140
		12	156
	cilioglossum	6	76
	clavigerum	9	106
		9	107
	crassuli folium	2	21
		5	57
		8	81
		9	105
		11	140
		12	156
	crassulifolium var. intermedium	8	92
	elisae	2	21
		3	27
		5	51
		11	139
	exiguum	2	20
		5	51
		7	84
		8	91
		9	105
		11	139
		12	154
		12	156
	gadgarrense	8	92
		8	95

		Number	Page
Bulbophyllum	globuliforme	10	126
		11	140
	johnsonii	12	156
	lichenastrum	3	28
	macphersonii	10	118
		12	152
		12	156
	minutissimum	5	51
		10	126
		11	140
	nematopodum	6	76
		12	156
		12	156
	radicans	6	76
	toressae	6	64
	wadsworthii	8	94
	weinthalii	5	51
	weinthalii	10	126
		11	138
		11	142
		12	156
Cadetia	hispida	11	131
	taylori	11	131
	ruppii	11	134
Caladenia		1	3
		2	21
		6	72
		8	98
		7	110
		11	142
	alba	5	51
	alba var. picta	5	51
		5	60
	angustata	10	124
		11	143
	barbarossae	6	73
	brunonis	4	44
	caerulea	10	130
	cardiochila	2	20
	carnea	5	51
		10	124
		11	143
	carnea var. gigantea	5	51
	clavigera	3	35
		5	60
		9	110
	cucullata	5	51
		10	124
		11	143
	deformis	4	42
		6	73
		6	75
		8	98
		10	124
	dilatata	4	43
		4	44
		5	60
		8	98
		9	110
		10	124
	dilatata var. concinna	9	113
		10	125
	dilatata var. rhomboidiformis	6	73
	emarginata	4	44
	flava	6	73
	filamentosa	2	15
		4	42
		6	73
	filamentosa var. tentaculata	2	15
		2	20
		4	43
		4	44
	fitzgeraldii	3	31
		5	51
	gemmata	4	43
	hirta	4	42
		4	43
		4	44
	holmesii	3	30
	integra	4	44
	latifolia	2	19
		2	20
		6	73
		11	143
	longiclavata	4	42
	macrostylis	4	42
	pallida	8	98
	paniculata	4	44
		6	73
	patersonii	4	42
		4	43
		6	73
		10	124

AL HERBARIUM
LIBRARY
OTANIC GARDENS
ARRA, S.E.1, VIC.
OCT 1966

Index – The Orchadian – Vol. I – Nos. 1–12 (Continued)

		Number	Page
Caladenia	patersonii var. longicauda	4	42
	pectinata	4	42
	purdieana	4	44
	reptans	6	73
	reticulata	8	98
	roei	4	43
	tenuis	4	44
	unita	4	42
		6	73
Calanthe	triplicata	5	49
		5	51
		11	138
	veratrifolia	2	21
		5	49
Caleana		1	3
		2	21
		2	23
	major	5	51
		8	98
		10	130
		11	143
	minor	8	98
Callicoma		11	141
Calochilus		1	3
		9	110
		11	142
	campestris	3	30
		5	51
		11	143
	grandiflorus	5	51
	paludosus	5	51
		11	143
	robertsonii	5	51
		10	130
		11	143
	saprophyticus	3	30
		3	31
		8	98
Casuarina		7	84
		10	118
		11	140
	cunninghamiana	10	118
		10	122
		11	140
		11	141
	glauca	10	118
		10	121
		10	122
		11	140
Ceratopetalum	apetalum	11	141
Chiloglottis		1	3
	formicifera	5	51
		6	73
		6	75
	gunnii	5	51
		8	98
		10	130
		11	143
	reflexa	3	35
		5	51
		8	98
		9	114
	trapeziformis	10	124
		12	152
Chiloschista	pyllorhiza	11	131
Cirrhopetalum	clavigerum	9	106
Corybas		1	3
		8	98
		9	110
		11	142
	aconitiflorus	1	3
		5	51
		6	66
		6	68
	carsei	1	3
		6	66
		6	68
	cryptanthus	1	3
		1	4
		6	66
	diemenicus	2	20
		6	68
		10	124
		12	156
	dilatatus	2	20
	fimbriatus	5	51
		6	65
	fordhamii	1	3
		6	68
	pruinosus	5	51
		7	85
	undulatus	6	66
	unguiculatus	1	3
		6	66
		9	113
Cryptanthemis	slateri	3	30
		6	66

		Number	Page
Cryptostylis		6	73
		9	104
	erecta	5	51
		6	66
		6	73
		6	75
		9	105
	leptochila	6	73
		6	75
	ovata	6	73
		6	75
		10	125
	subulata	5	51
		6	66
		6	73
		6	75
		8	98
		9	104
		9	105
		9	108
		9	112
		10	125
		11	143
Cudrania		5	58
Cycnoches		5	59
Cymbidium		6	74
		11	140
		12	159
	canaliculatum	2	21
		5	51
		11	140
	iridifolium	5	49
		5	51
	madidum	5	49
		11	140
		12	156
	suave	2	21
		3	35
		7	84
		5	51
		9	105
		11	140
Dendrobium		1	3
		2	22
		3	31
		6	74
		7	79
		7	82
		7	84
		10	121
		10	124
		11	132
		12	152
		12	159
	adae	3	27
		7	82
	aemulum	2	21
		2	23
		3	26
		5	51
		9	108
		11	142
	agrostophyllum	7	82
	aurantiaco – purpureum	3	28
	bairdianum	12	156
	Bardo Rose	2	15
		3	36
	baseyanum	10	121
	beckleri	2	21
		5	51
		5	52
		5	57
		6	84
		9	108
		10	119
		10	120
		10	122
		10	123
		10	124
		11	139
	beckleri var. racemosum	5	52
		10	119
	cancroides	1	5
	carrii	7	82
	convexum	11	134
	cucumerinum	2	21
		2	23
		3	26
		3	27
		4	47
		5	51
		9	108
		10	122
		11	141
	cunninghamii	10	121
	delicatum	2	13

		Number	Page
Dendrobium	delicatum	2	14
		2	15
		2	21
		3	23
		5	50
		5	51
		7	79
		11	138
		12	146
		12	147
		12	148
		12	149
	delicatum nm. kestevenii	12	149
	discolor	8	91
		12	160
	Ellen	2	14
		3	36
	falcorostrum	2	21
		2	23
		5	51
		9	108
		11	141
	fleckeri	3	27
	foederatum	10	121
	fusiforme	5	49
		12	159
	glabrum	11	134
	gracilicaule	2	21
		3	27
		4	39
		5	51
		7	84
		11	139
	gracillimum	2	21
		3	36
		5	51
		11	139
	grimesii	10	121
	hillii	3	35
	johannis	12	156
	kestevenii	2	14
		2	15
		5	50
		11	137
		11	144
		12	146
		12	147
		12	148
		12	149
	kingianum	1	2
		2	14
		2	21
		2	22
		2	23
		3	26
		3	36
		5	51
		5	55
		7	84
		11	138
		11	139
		12	147
		12	149
		12	156
	kingianum var. pulcherrimum	2	14
	kingianum var silcockii	3	27
	lichenastrum	3	25
		3	28
		3	30
		6	64
		10	123
		10	124
	lichenastrum var. lichenastrum	3	28
		3	29
		3	30
		10	123
	lichenastrum var prenticei	3	30
	lichenastrum var. prenticei formaprenticei	3	30
	lichenastrum var. prenticei forma aurantiaco-purpureum	3	29
		3	30
		10	123
	linguiforme	3	21
		2	23
		3	26
		3	27
		5	51
		5	57
		9	105
Dendrobium	linguiforme	9	108
		10	118
		10	121
		10	122
		10	123
		11	138
		11	140
		11	141
	linguiforme var. linguiforme	10	121
		10	122
	linguiforme var. huntianum	10	122
	linguiforme var. nugentii	10	122
	masonii	11	134
	monophyllum	2	21
		5	51
		7	82
		7	88
		11	139
		11	140
	mortii	5	51
		10	120
		10	122
		11	139
	Peter Peterson	4	40
	phalaenopsis	4	38
	prenticei	3	28
		3	30
	"Profusion"	2	15
		3	36
	pugionforme	2	21
		5	51
		5	57
		9	105
		10	123
		10	124
		11	139
	racemosum	5	52
		10	119
		10	120
		10	122
		10	123
	rigidum	8	91
		10	121
		10	123
	ruppianum	5	41
		12	158
	schneiderae	5	51
		7	82
		10	126
		11	139
		11	140
		12	156
	schneiderae var. major	7	84
	speciosum	2	15
		2	22
		2	23
		5	51
		5	57
		8	97
		9	105
		11	138
		11	139
		12	146
		12	147
		12	149
	speciosum var. delicatum	12	146
	speciosum var. fusiforme	5	49
	speciosum var. hillii	2	21
		3	35
		5	51
		7	84
	striolatum	3	27
		5	57
		8	98
		10	120
		10	121
		11	138
		11	142
	suffusum	7	80
	superbiens	4	38
		6	75
	tenuissimum	2	21
		5	51
		10	120
		10	123
		10	124
		11	140
	teretifolium	3	27
		5	51

Index – The Orchadian – Vol. 1 – Nos. 1–12 (Continued)

		Number	Page
Dendrobium	teretifolium	5	52
		5	57
		7	84
		10	118
		10	119
		10	120
		10	121
		10	122
		10	123
	teretifolium var. teretifolium	10	118
		10	119
	teretifolium var. aureum	5	51
		10	118
		10	124
	teretifolium var. fairfaxii	2	21
		5	51
		10	118
		10	119
		11	139
	teretifolium var. fasciculatum	8	91
		10	118
		10	119
		10	120
		10	121
		10	123
	tetrogonum	2	21
		3	27
		5	51
		7	84
		9	105
		11	140
	toftii	4	40
	toressae	6	65
		7	79
		10	124
	undulatum	4	40
		12	159
	variabile	3	28
Desmotrichum	convexum	11	134
Diplocaulobium		11	132
		11	134
	glabrum	11	132
		11	133
		11	134
	masonii	11	132
		11	133
		11	134
Dipodium		2	21
		3	30
	punctatum	5	51
		8	98
		9	105
		10	124
		11	143
Diuris		2	21
		4	37
		4	43
		5	59
		7	85
	abbreviata	3	35
		5	51
	aurea	5	51
	brevifolia	2	20
		9	111
	cuneata	5	54
	longifolia	4	42
		12	156
	maculata	2	19
		2	20
		8	98
		10	124
	palachila	10	124
	palustris	2	19
		2	20
		9	113
	pedunculata	8	98
		10	124
	punctata	5	51
		5	54
		10	130
	sulphurea	5	51
		8	98
		10	124
Drakea		2	23
	fitzgeraldii	4	42
Dysoxylum	muelleri	7	84
Earina		1	3
Elythranthera	brunonis	4	44
	emarginata	4	44
Ephemerantha		11	132
		11	134
	convexa	11	132

		Number	Page
Ephemerantha	convexa	11	133
		11	134
Epipactus	reflexa	3	35
Eria		8	97
	fitzalanii	12	156
Eriochilus		9	110
	cucullatus	5	51
		8	98
		9	112
		10	124
		11	140
Eucalyptus		11	140
	albens	11	140
	citriodora	5	59
	paniculata	11	142
Ficus		11	139
	macrophylla	10	122
Flickingeria		11	132
	convexa	11	134
Galeola		3	30
	cassythoides	5	51
	foliata	5	51
Gastrodia		1	3
		3	30
	cunninghamii	1	3
	minor	1	3
	orobanchoides	1	3
	sesamoides	1	3
		5	51
		8	98
		10	124
		11	143
		12	158
Geodorum		1	3
	pictum	2	16
		5	51
		11	138
Geranium		5	59
Gladiolus		5	58
Glossodia		2	21
		9	110
		11	142
	brunonis	4	44
	emarginata	4	43
	intermedia	4	42
	major	5	51
		8	98
		10	124
	minor	5	51
		6	66
Goadbyella	gracilis	4	44
Goodyera	rubescens	9	106
	rubicunda	9	106
Gunnia	australis	3	32
Habenaria		12	149
		12	150
		12	152
		12	154
	angustata	12	150
	anomala	12	150
		12	151
	arnhemica	12	149
	eurystoma	12	150
	ferdinandii	12	149
		12	150
		12	151
	ferdinandii var. ferdinandii	12	151
	ferdinandii var. arnhemica	12	150
		12	151
	graminea var. arnhemica	12	149
	muelleriana	12	149
	ovoidea	12	150
	xanthantha	12	150
Helichysum	davenportii	4	42
		4	43
		4	44
Hypolaena		1	3
		10	127
Laportea		11	140
Leptoceras		4	42
Limodorum		4	38
Liparis	coelogynoides	2	21
		5	51
		11	140
	habenarina	5	51
	reflexa	2	21
		5	51
		9	105
		11	138
	simmondsii	5	51
Lycopodium	serpentinum	1	3
Lyperanthus		1	3
	nigricans	4	42

		Number	Page
Lyperanthus	nigricans	11	142
	serratus	4	42
	suaveolens	5	51
		8	98
		12	156
Malaxis	latifolia	12	156
Melaleuca		1	5
		1	7
		4	39
		6	66
		9	108
		10	118
		10	122
		11	140
Microtis		1	3
		8	98
		9	112
	atrata	9	112
		9	113
	oblonga	5	51
	orbicularis	9	112
		9	113
		10	125
	parviflora	9	112
		11	143
	unifolia	5	51
		9	112
		10	124
Mobilabium	hamatum	10	118
		10	123
Neottia	rubicunda	9	106
Nervilia	dallachyana	11	131
Nicotiana	tabacum	3	31
Nothofagus	moorei	11	141
Oberonia		3	31
		7	84
		11	134
		11	139
	attenuata	11	136
		12	160
	muelleriana	5	51
		11	136
		11	137
		11	140
		12	160
	titania	5	51
		9	103
		11	134
		11	135
		11	136
		11	137
		11	140
		12	160
Oncidium		5	55
Ophrys	lancea	5	49
Opuntia		5	58
		6	63
Orthoceras		1	3
	strictum	7	85
		9	112
Passiflora		5	58
Pelargonium	havlasae	4	43
Peristeranthus	hillii	5	51
Petalochilus		1	3
		12	158
		12	159
	calciformis	12	158
Phaius		5	59
	australis	5	51
	tankervilliae	3	36
		5	51
		11	138
Phreatia	robusta	6	64
Phalaenopsis	amablis var. rosentromii	8	97
Pisum	sativum	6	63
Platycerium		10	120
		10	124
	grande	4	39
		5	57
		6	63
		11	138
Polystachy		12	159
Prasophyllum		1	3
		2	21
		8	98
		8	102
		12	158
	anomalum	5	51
		11	131
	ansatum	11	131
	archeri	5	51
		11	131
	aureoviride	11	131

		Number	Page
Prasophyllum	australe	4	40
		9	111
	baueri	11	131
	bowdenae	11	131
	brevilabre	4	39
		5	51
	deaneanum	11	131
	densum	8	101
		11	131
	elatum	4	40
	elatum var. muelleri	4	40
	fimbriatum	5	51
		11	131
	fitzgeraldii	9	112
	fusco-viride	4	44
	gracile	4	37
	horburyanum	4	44
	morrisii	11	131
	mucronatum	12	164
	muelleri	4	44
	nichollsianum	11	131
	nigricans	10	124
		11	131
	odoratum	5	51
		8	108
	paludosum	4	44
	parviflorum	10	125
	patens	8	102
	reflexum	9	104
		11	131
	rufum	11	131
		12	164
	ruppii	7	80
		9	104
		11	131
	trifidum	11	131
		11	131
Pterostylis		1	3
		1	5
		2	21
		5	58
		6	72
		7	88
		8	98
		9	110
		10	124
		10	127
		11	142
		12	152
		12	154
		12	158
	acuminata	6	75
		8	94
		12	156
	alata	1	7
		2	19
		8	98
		9	110
		10	124
	areolata	10	128
	australis	10	128
	banksii	10	130
	banksii var. banksii	10	128
		10	129
	banksii var. patens	10	130
	baptistii	5	51
	barbata	2	18
		2	20
		4	44
		9	110
		10	124
		10	127
	boormanii	6	68
		7	87
		7	81
		12	156
	caulescens	10	130
	coccinea	1	7
		5	51
		9	109
		10	128
	concinna	1	5
		8	98
		9	110
		12	156
	cucullata	2	18
		2	20
		10	127
	curta	2	18
		2	19
		2	29
		5	51
		8	98

		Number	Page
Pterostylis	curta	9	109
		10	124
		12	156
	cycnocephala	2	19
		5	51
		9	110
		10	127
	daintreana	3	31
		5	50
		5	51
		9	109
	decurva	5	51
		8	100
		9	109
	falcata	6	75
		9	109
		10	124
		12	156
	fischii	8	100
		11	137
	foliata	10	127
		10	128
	furcata var. linearis	10	127
	furcata var. micromega	10	127
	gibbosa	6	70
	gracilis	10	127
	graminea	10	130
	grandiflora	5	51
		8	98
		12	156
	hildae	5	51
		7	88
		12	156
	humilis	10	127
	irsoniana	10	128
		10	129
		10	130
	longifolia	2	19
		5	51
		9	110
		10	124
		11	143
		12	156
	mathewsii	10	127
	mitchellii	6	69
		6	70
		6	71
	montana	10	128
		10	130
	montana var. montana	10	128
	montana var. rubricaulis	10	128
	mutica	2	18
		2	20
		9	110
		10	124
		10	127
		12	156
	nana	1	5
		1	7
		2	19
		4	44
		10	124
		10	127
		11	143
		12	156
	nutans	2	19
		5	51
		9	110
		10	124
		10	127
		11	143
		12	156
	obtusa	1	3
		1	7
		5	51
		8	100
		10	128
	oliveri	10	128
	ophioglossa	5	51
		12	156
	parviflora	5	51
		6	66
		8	98
		9	110
		9	112
		10	124
		11	137
	pedoglossa	8	98
	pedunculata	1	7
		2	18
		2	20
		5	57
		9	110
		9	110
Pterostylis	pedunculata	10	124
		11	143
	puberula	10	127
	pulchella	8	94
		12	156
	pusilla	2	14
		5	51
		6	69
		6	70
		6	71
		9	110
		10	124
	pusilla var. prominens	6	70
		6	71
		12	160
	recurva	4	42
		12	156
	reflexa	9	109
		12	156
	revoluta	6	79
		9	109
		10	124
		11	137
	robusta	2	18
		2	19
		2	20
	rufa	6	69
		6	70
		6	71
		10	124
		12	156
	squamata R. Br.	6	69
		6	70
		6	71
		6	78
		10	124
	squamata Hook. f.	10	127
	toveyana	1	7
	trullifolia	1	3
		10	127
		10	128
	trullifolia var. alobula	10	128
		10	130
	trullifolia var. gracilis	10	128
	trullifolia var. rubella	10	128
		10	129
	truncata	1	7
		7	79
		9	110
		12	156
	turfosa	4	44
	venosa	10	128
		10	130
	vitatta	2	18
		2	19
		2	20
		4	42
		10	129
		12	156
	woolsii	5	51
		6	69
		6	70
		6	71
		12	160
		12	161
		12	162
Prunus	cerasus	3	31
Pyrus	malus	3	31
Rhinerrhiza	divitiflora	2	21
		5	51
		11	141
Sarcanthus		8	97
		12	154
	beckleri	2	21
		3	34
		5	51
		9	105
		11	141
	purpuratus	2	21
		5	51
		11	141
	tridentatus	2	21
Sarcochilus		1	3
		12	154
	adversus	3	32
	australis	2	21
		3	32
		5	51
		11	141
		11	142
	barklyanus	3	32

		Number	Page
Sarcochilus	ceciliae	5	51
		7	88
		11	138
		11	141
	dilatatus	3	32
		5	51
	falcatus	2	21
		2	23
		3	26
		3	27
		3	32
		4	38
		5	51
		6	62
		9	108
		10	126
		11	138
		11	141
	fitzgeraldii	5	51
		8	97
		11	138
	fitzgeraldii var. aemulus	5	51
	harriganae	3	34
	hartmanii	2	21
		5	51
		11	138
	hillii	2	21
		3	32
		3	37
		5	51
		9	105
		11	141
	olivaceus	2	21
		3	26
		3	32
		5	51
		9	105
		9	108
		11	141
	olivaceus var. borealis	3	32
	parviflorus	3	32
	spathulatus	2	21
		3	32
		5	51
		11	141
	tricalliatus	12	156
	weinthalii	3	27
		5	51
		5	54
Spiculea		2	23
	irritablis	5	51
		12	156
Spiranthes		1	3
		2	21
		6	74
	australis	5	49
	lancea	1	3
		5	49
	sinensis	5	49
		5	51
		6	75
		8	97
		9	110
		9	112
		10	124
		11	143
Sporodanthus		1	3
Tainia	parviflora	11	131
Taeniophyllum	muelleri	2	21
		5	51
		8	97
		10	12
Thelymitra		1	3
		2	21
		6	74
		8	98
		9	110
		10	124
		11	142
		12	152
		12	154
		12	158
		12	159
	antennifera	10	130
	aristata	4	37
		5	51
		5	55
		5	56
		11	138
	grandiflora	11	143
	ixiodes	3	28
		5	51
		8	98
Thelymitra	ixiodes	11	143
		12	152
		12	156
	ixiodes var. truncata	9	113
		10	125
	longifolia	4	37
		5	55
		5	56
	nuda	4	37
	pauciflora	3	28
		4	37
		9	110
		9	112
		11	143
	pauciflora var. holmesii	10	125
	rubra	10	130
	venosa	9	111
Thrixspermum		5	58
	australe	3	32
	tridentatum	3	36
		5	51
		9	108
		11	138
		11	141
Thunia		4	38
Toona	australis	10	122
Townsonia		1	3
Tristania	conferta	11	142
Vanda		6	74
		12	154
	teres	5	59
Xylobium		12	158
Yoania		1	3
		1	4
	australis	1	3
		1	4

Index – The Orchadian – Vol. 1 – Nos. 1–12 (Continued)

Acianthus	caudatus	12	157
Acriopsis	nelsoniana	12	157
Aphyllorchis	anomala	10	117
	queenslandica	10	117
Bulbophyllum	aurantiacum	8	98
	baileyii	12	155
	bracteatum	12	155
	clavigerum	9	107
	crassulifolium	8	93
		12	155
	exiguum	12	155
	gadgarrense	8	95
	johnsonii	12	155
	macphersonii	12	155
	nematopodum	12	155
	radicans	12	155
	wadsworthii	8	95
	weinthalii	12	155
Caladenia	filamentosa	2	17
	'' '' v.tentaculata	2	17
Corybas	diemenicus	12	157
	undulatus	6	67
	unguiculatus	6	157
Cymbidium	madidum	12	157
Dendrobium	bairdianum	12	157
	beckleri	5	53
	cancroides	1	6
	johannis	12	157
	kestevenii	11	144
	kingianum	12	157
	lichenastrum	3	29
	'' '' v.prenticei	3	29
	'' '' '' forma aurontiaro-purpureum	3	29
	monophyllum	7	83
	racemosum	5	53
	Peter Peterson	4	41
Dendrobium	schneiderae	7	83
		12	157
	suffusum	7	81
	taftiix undulatum hybrid	4	41
	toressae	6	65
Diplocaulobium	glabrum	11	133
'' ''	masonii	11	133
Diuris	longifolia	12	157
Ephemerantha	convexa	11	133
Eria	fitzalani	12	157
Geodorum	pictum	2	17
Goodyera	rubicunda	9	107
Habenaria	anomala	12	151
	ferdinandii	12	151
	'' '' var. arnhemica	12	151
Lyperanthus	suaveolens	12	157
Malaxis	latifolia	12	157
Oberonia	attenuata	12	161
Oberonia	titania	11	135
Phreatia	robusta	6	65
Prasophyllum	densum	8	101
	elatum	4	41
Pterostylis	acuminata	12	156
	banksii	10	129
	barbata	12	156
	boormanii	6	67
		7	81
		12	156
	concinna	1	6
		12	156
	curta	12	156
	falcata	12	153
	fischii	8	101
	grandiflora	12	156
	hildae	12	156
	irsoniana	10	129
	longifolia	12	156
	mitchellii	6	67
	mutica	12	156
Pterostylis	nana	12	156
	nutans	12	156
	ophioglossa	12	156
	pulchella	12	156
	pusilla	6	67
	'' v.prominens	6	67
	recurva	12	156
	reflexa	12	156
	rufa	6	67
		12	156
	squamata	6	67
	trullifolia v. rubella	10	129
	truncata	12	156
	vitatta	12	156
	woolsii	6	67
		12	161
Sarcochilus	australis	3	33
	olivaceus	3	33
	spathulatus	3	33
	tricalliatus	12	157
Spiculea	irritabilis	12	157
Thelymitra	ixiodes	12	157

Royal Botanic Gardens Victoria
RBG00017381